HEALTH PROMOTION IN ELDERLY WITH OSTEOARTHRITIS IN KENYA

VERITE DEBORAH NAFULA SIKWE-KÜNNAP

HEALTH PROMOTION IN ELDERLY WITH OSTEOARTHRITIS IN KENYA

HUMAN AGING AND ELDERLY SERVICE

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EXAMENSARBETE	
Arcada	
Utbildningsprogram:	Human Aging and Elderly service
Identifikationsnummer:	10433
Författare:	Verite Sikwe-Künnap
Arbetets namn:	Hälsofrämjande hos äldre med artros i Kenya
Handledare (Arcada):	Solveig Sundel
Uppdragsgivare:	Kenya Osteoporosis Prevention and Age Concerned.

Sammandrag:

Det går inte att peka ut någon specifik orsak till artros; däremot finns ett flertal faktorer som ökar risken att utveckla artros. Artros är en multifaktoriell sjukdom. Faktorer som leder till ökad risk att utveckla sjukdomen är bland annat ålder, kön (kvinnor), yrke, etnicitet, näringsintag, övervikt och onormal ledfunktion. Artros är den främsta orsaken till funktionsnedsättningar i världen.

Studiens syfte var att identifiera och analysera faktorer som inverkar på hälsofrämjande aktiviteter hos äldre med artros i Kenya, samt den påverkan artros har på livskvaliteten bland de äldre i Kenya. Forskningsfrågorna var två

1. Vilka faktorer inverkar på hälsofrämjande aktiviteter i Kenya?
2. Vilken påverkan har artros på livskvaliteten bland äldre i Kenya?

Som metod användes litteraturstudie. De valda studierna inkluderade bland annat hantering av artros, utbredning av artros i Kenya och i världen, behandling och förebyggande av artros 2011. Använda sökmotorer var EBSCO, Ebrary, Google scholar och Africa journal online.

Den teoretiska referensramen i det här studien var hälsopromotion och livskvalitet, eftersom den ena inte kan undersökas utan den andra.

Den största begränsningen författaren mötte var att det nästan inte fanns några artiklar som tog upp ämnet artros i Kenya, ännu mindre ämnet hälsofrämjande och livskvalitet bland äldre med artros. Därför använde författaren studier och forskning gjord i västvärlden, för att försöka svara på forskningsfrågorna. Detta motiverades eftersom den lilla forskning som gjorts i ämnet visar att förekomsten av artros är liknande i Kenya och Afrika och i västvärlden.

Resultaten visar att det finns många faktorer som inverkar på hälsofrämjande aktiviteter hos äldre med artros. Den viktigaste faktorn är ändå utbildning, eftersom de människor som lider av sjukdomen behöver förstå sig på sjukdomen samt värdet i att få riktig läkarvård. Först då blir hälsofrämjande aktiviteter effektiva. Därför är utbildning viktig både för patienter, för läkare och för allmänheten som påverkas av artros i den sociala miljön.

Nyckelord:	Hälsofrämjande, artros, Hälsofrämjande i Kenya, artros i Kenya, äldre och artros i Kenya hälsofrämjande och äldre med artros i Kenya.
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Koulutusohjelma:	Human Aging and Elderly service
Tunnistenumero:	10433
Tekijä:	Verite Sikwe-Künnap
Työn nimi:	Terveyden edistäminen iäkkäillä nivelrikkoon Keniassa
Työn ohjaaja (Arcada):	Solveig Sundel
Toimeksiantaja:	Kenya Osteoporosis Prevention and Age Concerned

Tiivistelmä:
Selkeää nivelrikon aiheuttajaa ei tunneta, vaikka tietyt tekijät saattavatkin kasvattaa riskiä nivelrikon kehittymiselle. Nivelrikko on sairaus, jota ilmenee siihen altistavien tekijöiden kuten henkilön iän, sukupuolen (nainen), ammatin, kansallisuuden, ravinnon, ylipainon sekä poikkeavien nivelmekanismien seurauksena. Nivelrikko on maailmalla eniten liikuntakyvyttömyyttä aiheuttava sairaus.
Tämän tutkimuksen tarkoituksena oli tunnistaa ja analysoida nivelrikkoa sairastavien kenialaisten vanhusten terveyden edistämiseen liittyviä tekijöitä sekä nivelrikon vaikutuksia vanhusten elämänlaatuun Keniassa. Tutkimuskysymyksiä oli kaksi:
1. Mitkä tekijät vaikuttavat terveyden edistämiseen liittyvään toimintaan Keniassa?
2. Mikä on nivelrikon vaikutus vanhusten elämänlaatuun Keniassa?
Käytettyjä metodeja olivat kirjalliset tutkimukset, jotka sisälsivät tietoa nivelrikon hallinnasta sekä esiintyvyydestä Keniassa ja maailmalla, mukaan lukien myös nivelrikon hoito ja ehkäisy vuonna 2011. Tiedon hakuun käytettyjä hakukoneita olivat Ebsco, Ebray, Goggle scholar sekä Africa journal online.
Tutkimuksen teoreettinen kehys muodostui terveyden edistämisestä ja elämänlaadusta ottaen huomioon sen faktan, ettei kumpaakaan ole ilman toista.
Tekstiä rajattaessa suurimman rajoituksen muodosti se, että Keniassa nivelrikkoon liittyviä artikkeleja oli saatavissa hyvin vähän tai ei ollenkaan artikkeleita jättää yksin terveyden edistämisen ja elämänlaatua vanhusten nivelrikkoa.Kirjoittaja käytti täten länsimaissa julkaistuja tutkimuksia yrittäen näin vastata tutkimuskysymyksiinsä. Tämä siksi, että Keniassa ja Afrikassa tehtyjen muutaman tutkimuksen mukaan nivelrikkoa esiintyy siellä lähes samassa mittakaavassa kuin kehittyneissäkin maissa.
Tulokset osoittavat, että monilla tekijöillä on vaikutusta nivelrikkoa sairastavien vanhusten terveyden edistämiseen liittyviin toimiin. Kuitenkin tärkein näistä tekijöistä on koulutus. Jos terveyden edistämisen halutaan olevan tehokasta, täytyy niin nivelrikkoa sairastavien kuin terveydenhuoltoa tarjoavien (lääkärit) tietää ja ymmärtää, mistä on kysymys. Koulutus on tärkeää sekä potilaille että lääkäreille samoin kun niille ihmisille, joita nivelrikko sosiaalisesti koskettaa

Avainsanat:	Avainsanat: Terveyden edistäminen, nivelrikko, terveyden edistäminen Keniassa, nivelrikko Keniassa, vanhukset ja nivelrikko Keniassa
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DEGREE THESIS	
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Author:	Verite Sikwe-Künnap
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Supervisor (Arcada):	Solveig Sundel
Commissioned by:	Kenya Osteoporosis Prevention and Age Concerned.

Abstract:

There are no specific causes of osteoarthritis that can be identified; however several factors can increase the risk of developing osteoarthritis. Osteoarthritis is a multi-factorial disease that occurs with predisposing factors such as age; gender (female) Occupation, ethnicity, nutrition, obesity and abnormal joint mechanics. This disease is the major cause of disability in the world.

The aim of this study was to identify and analyze factors affecting health promotion activities in elderly with osteoarthritis in Kenya, and impact of osteoarthritis on quality of life in the elderly in Kenya. The research questions were two

1. What are the factors affecting health promotion activities in Kenya?
2. What is the impact of osteoarthritis on quality of life among elderly in Kenya?

The method used was literature review studies used included management of osteoarthritis, prevalence of osteoarthritis in Kenya and the world. Treatment and prevention of osteoarthritis in 2011 among others. The search engines used were Ebsco, Ebray, Goggle scholar, and Africa journal online.

The theoretical frame use in this study was health promotion and quality of life due to the fact that one cannot be examined without the other.

Limitation the biggest limitation the write encountered was that there were few or no articles on osteoarthritis in Kenya leave alone health promotion and quality of life of elderly with osteoarthritis. Therefore the writer used studies and research done in the western countries, to try and answer the research questions. This is because according to the few studies done in Kenya and Africa the prevalence rate of osteoarthritis is almost similar as that found in the developed pattern.

Results show that there are many factors affecting health promotion activities in elderly with osteoarthritis however the most important factor is education this is because in order to health promotion to be effective the people suffering from this disease need to know and understand what it is as well as the health care providers (doctors).Hence education is important to both the patients and doctors as well as the public affected by osteoarthritis in the social setting.

Keywords:	Health promotion, Osteoarthritis, Health promotion in Kenya, osteoarthritis in Kenya, Elderly and osteoarthritis in Kenya health promotion and elderly with osteoarthritis in Kenya.
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FÖRORD / FOREWORD

I would like to thank Arcada University of Applied Sciences for giving me the opportunity to study in this school. It has been sweet fun and sometime tiresome but it was worth every moment of it. Special thanks go to my teacher Solveig Sundell and my Tutor Brigitta Dahl who have understood me especially in the beginning. Also thank you for working with me as a class representative for HAGEL 2009 until now.

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To Sari and her family thank you for being my family way from home and giving me the opportunity to learn and experience Finland and yes culture.

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Special thanks to Dr. Oyoo and Dr. Etu two rheumatologists who were kind enough to share with me the insight and perspective of rheumatic disorders in Kenya

To my mum and Auntie Maggie without you i would not have been able to gather any information. Thank you for being such good grandmothers to my daughter while in Kenya.

To my dear and lovely husband words cannot express what you have been to me these past few months during this project. I want to thank you from the bottom of my heart for being my best friend, my pillar and my rock without you i would not have made it.

This work is a dedication to my late grandfather Andrea Oketch Okello, you were the best grandfather i could ask for .Without you i would not have been interested leave

alone had perspective in the elderly and their lives. What you gave me is irreplaceable thank you for being the best.

Above all I thank the almighty for giving me a great support system during my studies and friend that I can rely on as well as good colleges from different programs at arcarda.

1 INTRODUCTION

This study was done to show the need for health promotion amongst elderly suffering from osteoarthritis and other joint diseases affecting the elderly in Kenya. This is because the elderly are left with the burden of taking care of their grandchildren and sometimes even their sick children physically emotionally financially and psychologically.
In this section the study will go in to details about the motivation, background, aim, and re-search questions, limitations, theoretical frame work.

1.1 Motivation

The writer chose this topic because there is no research done on health promotion in elderly with joint diseases such as osteoarthritis in Kenya. Moreover this elderly are left as the sole care givers for orphaned children from Hiv/Aids. Therefore there is need for research on the impact of health promotion in elderly affected by rheumatic diseases. The following study shows how the grandparents (elderly) struggle to provide for their ailing children and grandchildren. How poverty and ill health impedes they role as care giver. Not only are the elderly able to provide the basic needs for their orphaned grandchildren due to their failing health as but also there are falling short in instilling discipline or have lack of skill to disciplining such orphaned children. Therefore they end up over-indulging, or simply ignore them when they miss behave because they fear the children may run away or become depress and some-times they hope that it will pass (Population Council/Horizons, 2004). The author also had firsthand experience during her practical in Kenya at huruma elderly home and bahati community center. These are but a few of the facilities that take care of the elderly. The author was also privileged to talk to two of the four rheumatologist in Kenya who helped her understand the effect of osteoarthritis in Kenya as well as get a clear picture on how much is known of this condition and it impact on elderly life.

1.2 Background

The writer writes about the country she is concentrating on is and what is the population of the country, what are the major economic structure that sustains the countries' growth. The writer tell us which organization commissioned her topic, who is their contact person there and what they do and what is their background.

This study is about the elderly in Kenya, the Republic of Kenya, is a country in East Africa that lies on the equator. It has the Indian Ocean on the south-east; it is bordered by Tanzania to the south. Uganda is to the west, while South Sudan is to the north-west. Ethiopia neighbor's her to the north and Somalia border's her to the north-east. (Wikimedia Foundation, Inc, 2012)
The country has land area of 580,367sqKm, and has a population of 43 million people. There are 42 different tribes of peoples and cultures. Due to urbanization the urban population has a diverse ethnical background whereby people are fluent in their mother tongues and the two official languages – English and Swahili. The country's geography structure it is as diverse as its population. It has a warm and humid climate along the costal part of the country on the Indian Ocean. The climate changes to savannah grasslands going inland towards the capital Nairobi. Nairobi has a cool climate mainly due to the close proximity to Mount Kenya. From the cool climate of Nairobi and its environs the land gives way to warm and humid tropical climate further inland towards Lake Victoria. On the other hand western region en-joys the temperate forested and hilly climate. On the north eastern regions along the border with Somalia and Ethiopia the area is covered by arid and semi-arid land which forms a desert kind landscape. (Kenya National Bureau of Statistics, 2011)

Kenya has two major weather seasons the "long rains" which occurs during the months of March/April to May/June and the "short rains" that occur during the months of October to November/December. However the temperature is usually warm and humid all year round apart from the hottest periods that occur during January, February and March, while the coldest months are in July and August

Average annual temperature

Table 1avarage annual temperature in Kenya (central intelligence Agency, 2012

City	Elevation (m)	Max (°C)	Min (°C)
Mombasa coastal town	17	30.3	22.4
Nairobi capital city	1,661	25.2	13.6
Eldoret	2,085	23.6	9.5
Lodwar dry north plain lands	506	34.8	23.7
Mandera dry north plain lands	506	34.8	25.7

There are eight provinces in Kenya: Central, Nairobi, Rift Valley, Nyanza, and western, Coast, Eastern and North Eastern. (Wikimedia Foundation, Inc, 2012)

1.3 Demographic and Population statistics

The life expectancy of the total population is 63yrs while the average life for male compared to female is 61 and 64 years respectively, While 73% of Kenya population is 30 years and below. The HIV prevalence amongst the adult population is 6.3%and the number of people with hiv and aids as of 2009 was 1.5million people. While the estimated number of deaths from hiv and aid yearly as of 2009 was 80,000people.
This being the case it is still evident that the country is highly fertile in that the country has an average rate of4 births per woman.

The following are statistics according to central Intelligence Agency this show exactly how the population of Kenya is constituted.

Age structure

0-14 years: 42.2% (male 8,730,845/female 8,603,270)

15-64 years: 55.1% (male 11,373,997/female 11,260,402)

65 years and over: 2.7% (male 497,389/female 605,031).

Sex ratio

At birth: 1.02 male(s)/female

Under 15 years: 1.01 male(s)/female

15-64 years: 1 male(s)/female

65 years and over: 0.79 male(s)/female

Total population: 1 male(s)/female.

Ethnic group

Kikuyu 22%, Luhya 14%, Luo 13%, Kalenjin 12%, Kamba 11%, Kisii 6%, Meru 6%, other African 15%, non-African (Asian, European, and Arab) 1% (Central Intelligence Agency, 2012)

The elderly in Kenya are people who are ages 55 and above in previous years the elderly acted advisors disputers and even were regarded highly when it came to functions in the community.

Economy

The following are the three major sectors that provide add on the economic growth of the countries development agriculture: 19%, industry: 16.4%, services: 64.6% (2011 EST.). While the following sectors two sectors are the main employment sectors. Agriculture: 75% and industry and services: 25% (2007). (Central Intelligence Agency, 2012)

The agricultural sector is the backbone of the country not only does it produce 50% of the country's export revenues but it also doubles up as provides staple living for people with small farms.

Culture and tradition

Kenya is divided in three large ethnic groups; there are namely The Bantu, the Nilots and the cuisine. However these major categories are divided further into small ethnical tribes approximately 42 tribes

These tribes have different cultures and tradition but the majority of them have intertwining cultural practices brought about by the close resemblance in languages, similar environment and physical distance of the ethnic groups.

1.4 Osteoarthritis

According to American College of Rheumatology(ACR) says osteoarthritis is a group of heterogeneous group of conditions which lead to joint symptoms and signs associated with defective integrity of the underlying bone and joint margins.

This form of arthritis is the most common; it causes pain and stiffness in joints. Osteoarthritis usually develops slowly over a period of several years. It affects multiple joints and changes can appear over a long period of time moreover they are difficult to notice until very late stages of the diseases. However some people may have changes and symptoms that appear and become worse immediately. According to arthritis foundation osteoarthritis (OA) is the most common chronic condition of the joints; about 27 million Americans suffer from osteoarthritis (Arthritis Foundation, 2012). While In the United Kingdom about 8 million people are affected (Arthritis Research UK, 2011). It is one of the leading causes of pain and disability in the America and the United Kingdom. For the rest of this thesis the author uses the abbreviation OA to mean osteoarthritis.

1.4.1 Types of osteoarthritis

There are two classification of osteoarthritis

Primary OA: this type of osteoarthritis does not have a definite cause; however it is usually associated to aging and hereditary factors. This type can appear on specific joints or all over for example on the hip, hands and or the knee joints (KO & CO, 2008)

Secondary OA: This is caused by past history of congenital abnormality or trauma (Hosie, 2008).They also may be localized or generalized and do not have a particular age group specifically

- Knees
- Hips
- Neck and back
- Base of the big toe
- Thumbs and fingers
- Hands

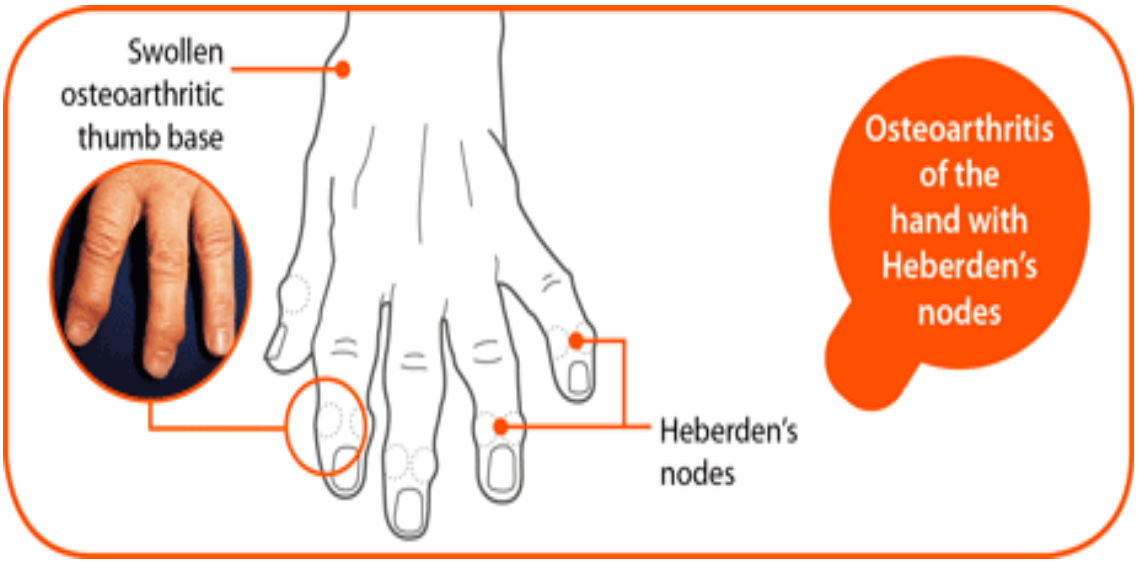


Figure 1OA of the hand (Arthritis Research UK, 2012)

How a normal joint work

A joint is where 2 or more bones meet. The joint lets your bones move freely but within limits.

What happens to a joint with osteoarthritis?

An osteoarthritic joint's surfaces become damaged and it doesn't move as well as it should do. The following happens to a joint that has osteoarthritis the cartilage becomes rough and thin, the bone at the end of the joint grows outwards causing bony spurs to form this spurs are called osteophytes. When the cartilage because rough and thin it causes friction that leads to the synovium to swell and produce extra fluid that leads to swelling of the joint. Also the capsule and ligaments start to slowly thickening and contract

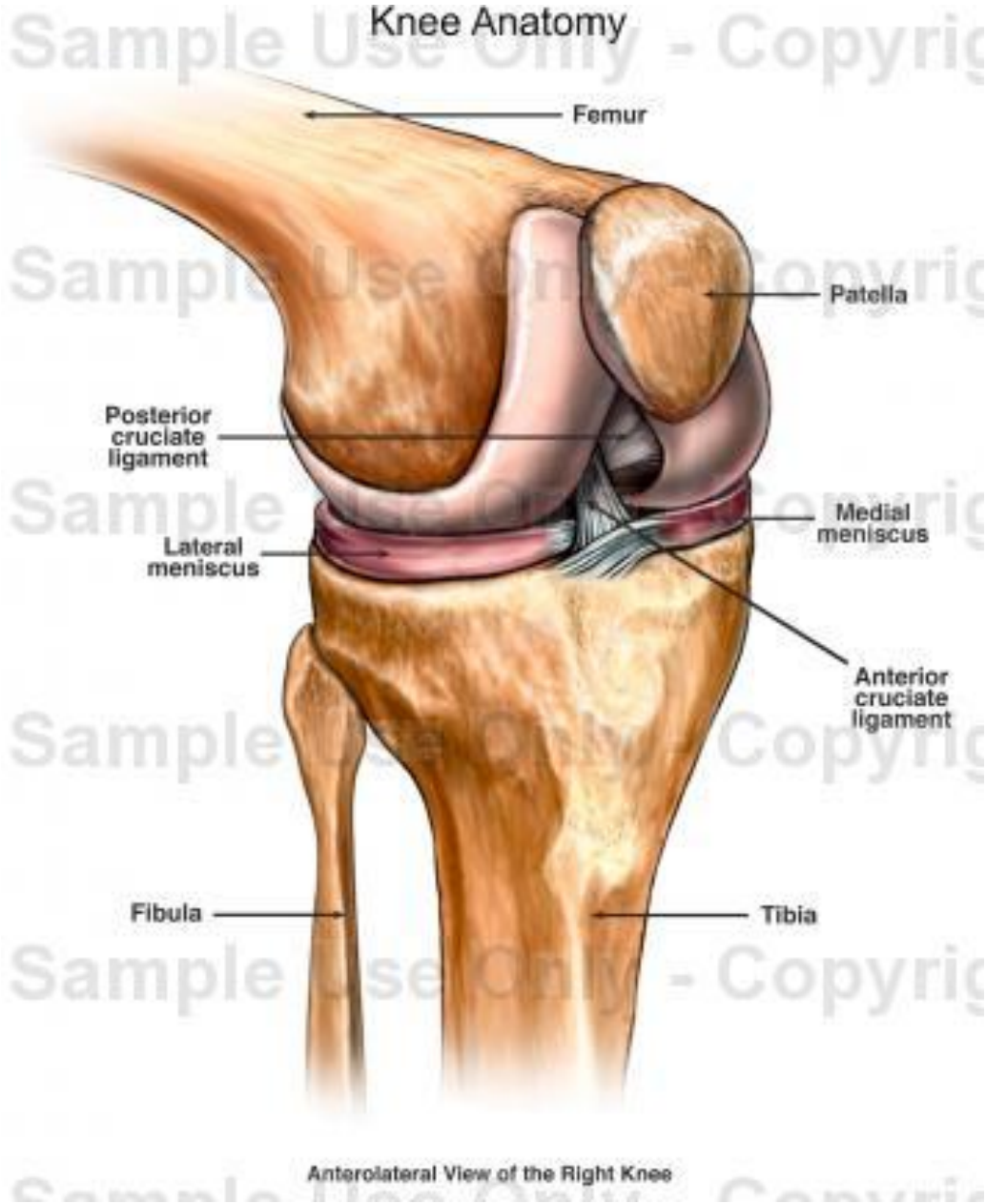


Figure 2A healthy Knee joint (Nucleus Medical Media Inc, s. 2012)

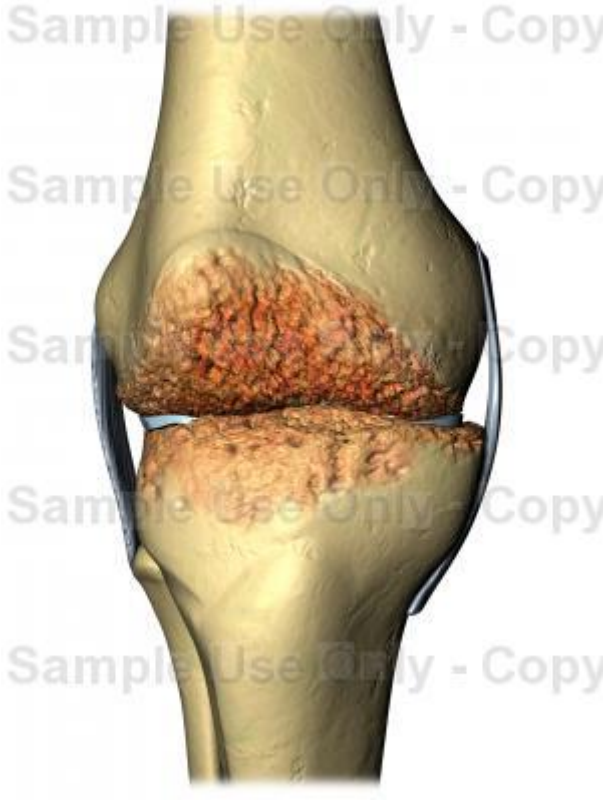


Figure 3OA of the Knee (Nucleus Medical Media Inc, s. 2012)

The knee is swollen at the medial collateral and this is usually the main sign of an osteoarthritic knee and it cannot make bending movement Osteoarthritis is normally characterized by joint Pain, Stiffness that last for 30minutes or less, Swelling, Achy muscles or joints, Fatigue, Weakness, Deformity Discomfort or abnormality with motion, Limitation in stamina or endurance, Warmth or tenderness to touch, Crepitation Abnormal posture or gait (Lane, 2

1.5 Predisposing Factors That Contribute To Osteoarthritis

There are no specific causes of osteoarthritis that can be identified; however several factors can increase the risk of developing OA. Primary OA is multifactorial diseases that occur with predisposing factors such as age; gender (female) Occupation, ethnicity, nutrition, obesity and abnormal joint mechanics this happen due to the muscle weakness or ligament laxity. Genetic predisposition usually affects hand and knee OA, the genetic factor accounts for the risk of 39% and 65% respectively. The above predisposing factors can further be grouped in three main categories namely genetic factors, non-genetic factors and environmental factors. This figure was created by Verite on 20th September 2012

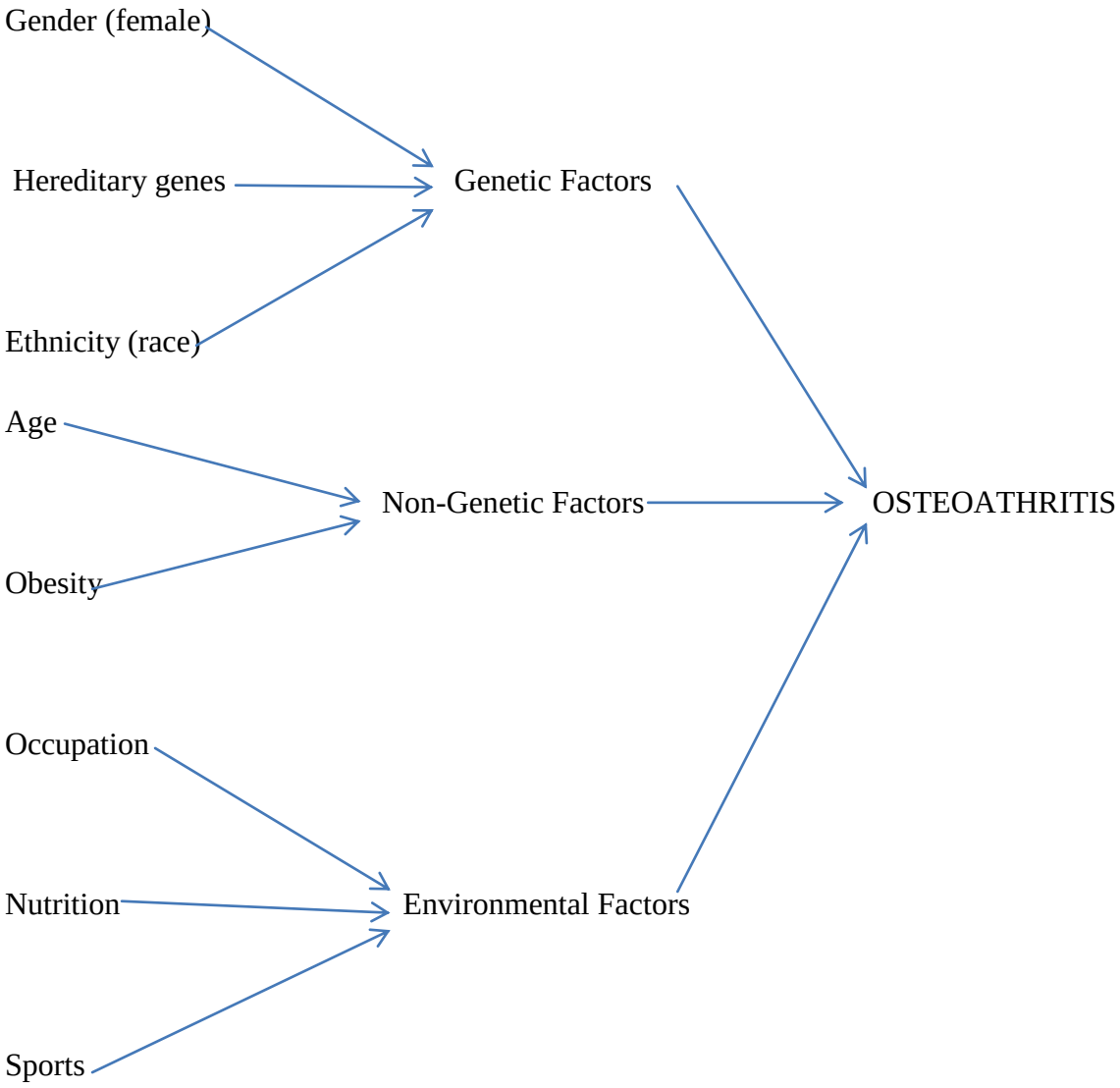


Figure 4 Risk factors involved in OA prevalence

1.5.1 Age

OA usually occurs in every one however the prevelance and severity of OA increases with age over 50 years. Early development of OA in one single joint, is usually an indication some major alteration in the physiology of the joint. This can be due to some form of previous trauma or injury. Even tough the interrelationship between age and OA is not absolutly evident, it is thought that OA increseas with age as aresult of the following factors. Slowed down reparing mechanism response can cause OA because the rate of reparing injury to the bone has reduced . A decrease in neuromuscular working ability, hence leading to loss of protection to the joint. High probability of joints being injured due to the increase of laxity of the ligment. OA dose not occur in several joints before the age of 50. If it does there is probably caused due to one or either the following reasons acromegaly, haemachromatosis, ochronosis or possibly a genetic type 2 collagen abnormality (Hosie, 2008).

1.5.2 Obesity

Increased body weight, which adds stress to lower body joints, is a well known for its contribution in the development of osteoarthritis. Your knees, which carry the heviness of your weight, are particularly at risk. In every weight gain, 4 pounds of pressure are added on to the knees and six times the pressure on the hips. Gaining weight as you head toward middle age can increase the likelihood of developing OA. New research done implie that excess body fat produces chemicals that travel throughout the body and cause joint damage, which would mean obesity, plays a high role in the development of OA but not as a mechanicalin the onset of OA.

Obesity is a major risk factor in OA of weight bearing joints i.e the knee and the hand. While in the western countries generalised OA is common in Africa the oligoarticular form of the knee and spine are common. (Bridget Hodkinson, 2011). Obesity affect both the risk of developing OA and the clinical course of established OA.

1.5.3 Genetic factors

As seen from the diagram above gender and ethnicity (race) play a major role in the prevalence of OA. Hereditary of genes prone to OA are also found but there are of minority prevalence. Hand, knee and hip OA have been observed to have strong heritability of about (40–60%); this is as a result of combining multiple common polymorphisms rather than rare single genes with a large individual effect. for example congenital dysplasia of the hip also known as precursors of hip OA. Other factors that could reflect in the developmental rate of OA is genetic, socioeconomic, and lifestyle factors. (Lane, 2002)

1.5.4 Ethnicity

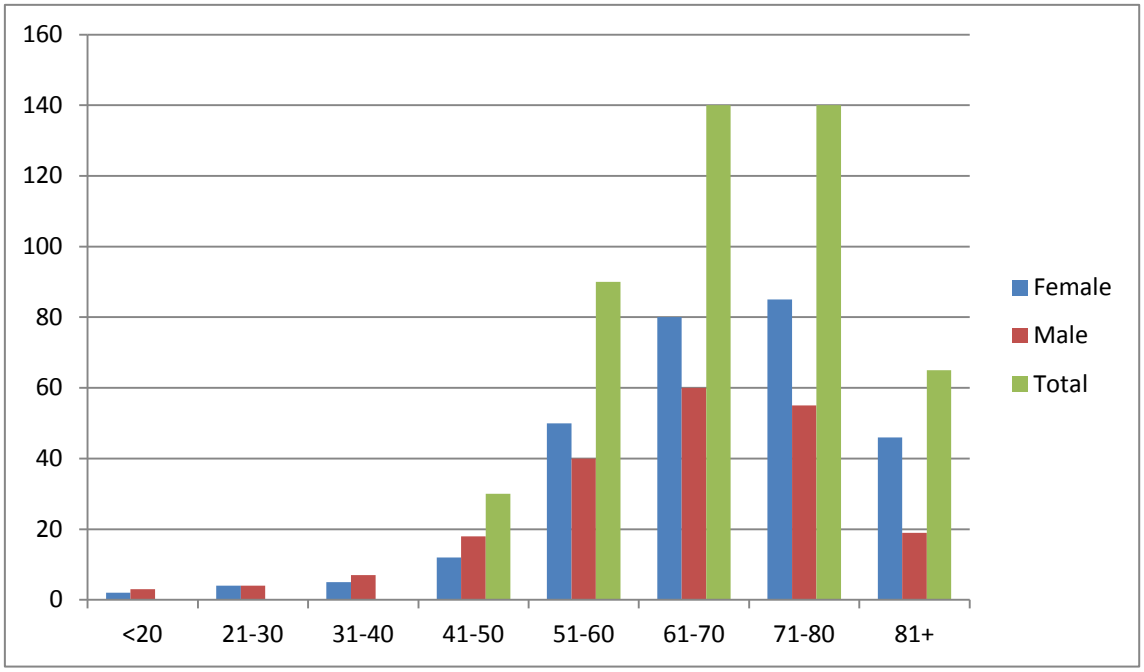
This factor is hard to ascertain if it belongs to the genetic factor or environmental factor. This is due to the fact that OA of the hip is prone to the Caucasians and less prevalent in the black Americans, Africans and even extremely rare in the Asian population. In the book ABC of rheumatology it states that knee OA is prevalent across the world, this is confirmed by researches done in African countries like Nigeria Cameroon.

1.5.5 Gender(Female/Male)

In both genders are equally likely to get osteoarthritis however under the age of 55 it appears more on the men while after the age of 55years it appears more in women. One likely reason could be because Women have broader hips that put more long-term stress on their knees. However with the onset of menopause women become more susceptibility to osteoarthritis of the hip (Arthritis Foundation, 2012)

Studies have shown that men have high prevalence of OA below the age of 50years however the pattern changes when both sexes reach the age of 50. The prevalence of OA occurs more in the women this has been arrived to due to the fact that women reach menopause around age 50 hence start losing the female hormone estrogen. From the recent studies done the presences of estrogen receptors have been found on the surface osteoblasts, confirming that the female estrogen is related to the increase of OA in women above 50years. (Hosie, 2008)

Table 2the age /sex distribution samples of OA patients. (Hosie, 2008)



1.5.6 Genes

Genetics or genes plays a role in the development and progression of osteoarthritis is, particularly in the hands. Inherited bone abnormalities that affect joint shape or stability or defects that cause cartilage to form abnormally can lead to OA. It's also more common in joints that don't fit together smoothly, such as those of people who are bow legged or double jointed. Having these traits, however, doesn't mean you'll develop osteoarthritis; just that a person is prone in getting OA.

Due to the polygenicit of the OA the structural gene controlling cartilage and the bone morphogenesis together with the genes involved in regulation of the thyroid and inflammation are usually associated with OA.

1.5.7 Nutrition

(Clark, 2001)pg361 There is increasing evidence that nutritional status, specifically with regard to vitamins C and D, may affect occurrence and progression of OA.(Hosie, 2008).

According to research done lack of vitamin C and D can affect the increase and development of OA while taking excess amount of vitamin D can prevent proper absorption of the vitamins. Therefore proper intake of these vitamins is essential in proper absorption and in the body of the vitamins. Also in delaying the occurrence of OA for lack of vitamin D (Lane, 2002)

1.5.8 Sports

Competitive sports such as football, running and downhill skiing exact a lot of strain and stress on joints leading to injury and trauma

‘‘Trauma, such as fracture, ligament damage or meniscal cartilage tears or previous knee surgery can lead to OA, as these events can alter the biomechanics around the joint and lead to abnormal loading’. This alteration can cause or increase the risk of knee OA. (Hosie, 2008). Studies show that weakness of the muscles surrounding the knee is associated with OA, especially in women, and makes the pain and stiffness worse after onset. Strengthening exercises for thigh muscles are important in reducing the risk.

1.5.9 Occupation

The regular use of joints also increases the risk of getting OA, especially if used certain repetitive pattern. Also jobs associated with bending, squatting, kneeling and or carrying heavy weights has shown that this jobs can lead to higher chances of developing OA in older years. (Hosie, 2008)

The following occupations have an increased risk of the development of OA. Farmers, due to the nature of their job which includes activities such a as bending, walking long distances over rough ground and lifting heavy weights, they are likely to develop hip OA this is because such activities done over a long period of time put stress on the hip

joint therefore increasing the prevalence of hip OA amongst farmers. while jobs that involve a lot of bending and caring a lot of loads on the head or back like miners, construction workers the stress put on joints like knees and spin can lead to occurrence of knee and spinal OA. (Hosie, 2008)

1.6 Prevalence of Osteoarthritis among Elderly

OA is rising in the world's aging populations; it is the sixth among leading cause of years lost because of disability globally. 3 percent disability globally is due to OA, this is 10 percent of men and 18 percent of women over the age of 60 have OA. The table below shows the prevalence of OA in the world. (The International Bank for Reconstruction and Development/the World Bank, 2006)

Table 3Estimated Burden of musculoskeletal Diseases, by gender and by Developed or Developing regions, 2001(Jamison DT, 2006)

Numbers of DA-LYs(Thousands)	Total	males	Females	developing regions both genders	developed Re-gions both genders
Rheumatoid arthritis	4,757	1,353	3,404	3,238	1,520
Osteoarthritis	16,372	6,621	9,750	11,049	5,323
Other musculoskeletal diseases	8,699	5,033	3,638	6,789	1,880
All musculoskeletal diseases	29,798	13,007	16,792	21,076	8,723
Percentage of total DALYs					
Rheumatoid arthritis	0.32	0.18	0.49	0.27	0.59
Osteoarthritis	1.12	0.86	1.39	0.91	2.05
Other musculoskeletal diseases	0.59	0.65	0.52	0.56	0.73
All musculoskeletal diseases	2.03	1.69	2.40	1.74	3.37
Percenterge of musculoskeletal DALYs					
Rheumatoid arthritis	15.96	10.40	20.27	15.36	17.42
Osteoarthritis	54.94	50.91	58.07	52.43	61.02
Other musculoskeletal diseases	29.10	38.69	21.66	32.21	21.56

1.6.1 Osteoarthritis in Kenya

Just like all the rest of the world osteoarthritis is the most common form of rheumatic disorder even in Kenya's aging society

Rheumatic diseases are commonly associated with the aging and are usually undiagnosed or go untreated. However elderly people have similar rheumatic disorders as those found in younger people but the difference is just the severity, pattern and the damage of the diseases as well as their end treatment. (R.C. Tallis & Brocklehurst, 1998)

The prevalence of rheumatic diseases in East Africa appears to parallel patterns seen in western countries. (Journal of the International League of Association for Rheumatology, 2010). However the prevalence of OA in the elderly is hard to determine because of the difficulty of defining the condition to the community this is because pain on the knee, hands, and back are wide spread and usually associated with aging in the communities'. (group.bmj.com, 1995)

Rheumatic disorders are not widely researched on in Africa leave alone Kenya. However not until 2004 was any kind of study done in an effort to determine the prevalence of rheumatic disorders in Kenya. Below is table showing the most common forms of rheumatic disorder in Kenya.

Table 4 Distribution of musculoskeletal diseases in Kenya (Dr.G.O.Oyoo, 2004)

Disease cause	number of patients	%
Osteoarthritis	305	39.77
Rheumatoid arthritis	174	22.69
Soft tissue Rheumatism	109	14.21
low back ache	80	10.23
gout	27	3.52
spondyloarthropathis	24	3.13
osteoporosis	12	1.56
Systemic Lupus Erythematous	12	1.56
Juvenile chronic arthritis	8	1.04
Raynold's phenomenon	5	0.65
Polymyositis/Dermatomyosits	4	0.52
Scleroderma	3	0.39

Table 5 Prevalence of OA of the knee in Nigeria (Adebajo, 2009)

Body Joint	Male	Female	Total	% Frequency
Knee	165	704	869	77.6
Hip	45	84	129	11.5
Wrist and Hand	2	5	7	0.6
Feet	0	4	4	0.4
Elbow	2	2	4	0.4
Sholder	30	52	82	7.3
Ankle	8	17	25	2.2

The assessment and classification of OA can either be mild, moderate or severe. This classification has helped in the development of treatments and management strategies. These include education, prevention, medical interventions, surgical management and aftercare. Educational programs are important, considering population that may have OA but never looks or finds, help and advice. (Hosie, 2008)

2 AIM AND RESEARCH QUESTION

The aim of this thesis is to describe and analyze health promotion activities being practiced in Kenya amongst elderly suffering from osteoarthritis. Identify what factors affect health promotion in elderly suffering from osteoarthritis in Kenya and find out how osteoarthritis impact on quality of life among the elderly in Kenya.

2.1 Research Questions

1. What are factors affecting health promotion activities in Kenya?

2. What is the impact of osteoarthritis on quality of life among the elderly in Kenya?

2.2 Limitation

The limitation encountered in this study is that they were no health promotion studies done in African in connection with joint problems. So the writer had to use some intervention research done in the western even though the reasons and circumstances leading to osteoarthritis in the elderly in the western countries and African are totally different.

3 THEORETICAL FRAMEWORK

Theoretical framework is a collection of interrelated concepts that comes together to form the foundation of a research. It guides the researcher, determining what things are to be researched on, and what statistical relationships to look for. Theory is a magnifying glass that helps the researcher to look at the research questions in differnt perspective. (Bengtson et al 2009).

The writer chooses to use theories of Health promotion and quality of life as the theoretical framework of this thesis because it is related to the research questions. Therefore the writer analyzes different ways to promote health and improve the quality of life for the elderly with the goal to answer the research questions

Before commencing on these two theories of health promotion and quality of health, it is wise to look at empowerment since it has and is the point of interest in health promotion as well as quality of life. Within the definition of health promotion, the empowerment is usually the core concept for many researchers dealing with health practise.

Empowerment is enhancing equality in health as well as public participation regarding decisions affecting lives of the people. This concept enables "individual assert their own autonomy and self-esteem sufficiently to be able to identify their own health goals,other thanbe lead on goals that are not theirs health wise". (Chambers & Thompson, 2008) With respect to health promotion concept, empowerment theory incorporates collaboration and encouragement that enables the individual to make their own decision. (Haber 2007)

3.1 Health promotion

The World health organization (1986) defines health promotion as "the process of enabling individuals and community to increase control over the determinants of health and

thereby improve their health". (Davies & MacDowall, 2005). Because the outcome of health promotion is, good health suggesting that health is the "state of a complete physical, mental and social wellbeing and not merely the absence of disease or infirmity". (http://www.who.int/aboutwho/en/definition.html).

However, O'Donnell(1989) opposes the idea of 'complete' absence of physical, mental and social wellbeing as not to be realistic in present day society. This is because many people today are living longer with increasing chronic diseases. It would rather be wise to omit the word 'complete' from the definition in order to produce a broader definition as suggests by O'Donnell's (1989) that health promotion is "the science and art of helping people change their life style to move towards a state of optimal health. it can be facilitated through a combination of efforts to creat awareness, change behavior, and present an environments that supports good health practices." (Loeb et al 2001)

Therefore, according to Chambers and Thompson 2008 health promotion should be view in two perspectives; these are holistic and biomedical approach.

3.1.1 Holistic Approach To Health Promotion

Holistic Approach to Health Promotion

This approach understands health "as an important part of a social life, outside of which it is not possible to isolate illnesses or diseases". (Chambers and Thompson 2008) .

this approach, helps health care workers to considers of other contributive reasons for certain illness as well as other factors that contributed to that illness in question as well as environmental and societal impact of health to the individual. For example, physical, mental, social, spiritual, sexual and emotional aspects. (Lis et al 2008) This is because people's health is usually influenced by family, culture, environment and even social conditions. Therefore, considerations regarding these factors will go a long way to achieve a satisfactory goal of health promotion.

3.1.2 Biomedical Approach To Health promotion

The biomedical approach "emphasizes on individual behavior change by patients, controlled by the nurse, as pathology is thought to be isolated largely within the individual body". (Chambers and Thompson 2008). Through this approach, healthcare provides runs a test to check sections of the body suspected to have a breakdown for an intervention to follow so that the individual should move from an unhealthy state to a healthy state.

However, for there to be a successful health promotion amongst the elderly, the health promotion strategies' should include proper evaluation procedure, implementation of a holistic approach, active involvement (empowerment) and to compare the practice to evidence based source (Lis et al 2008). Figure 3 below shows the different steps to consider when promoting health among elderly people.

Health Promotion model

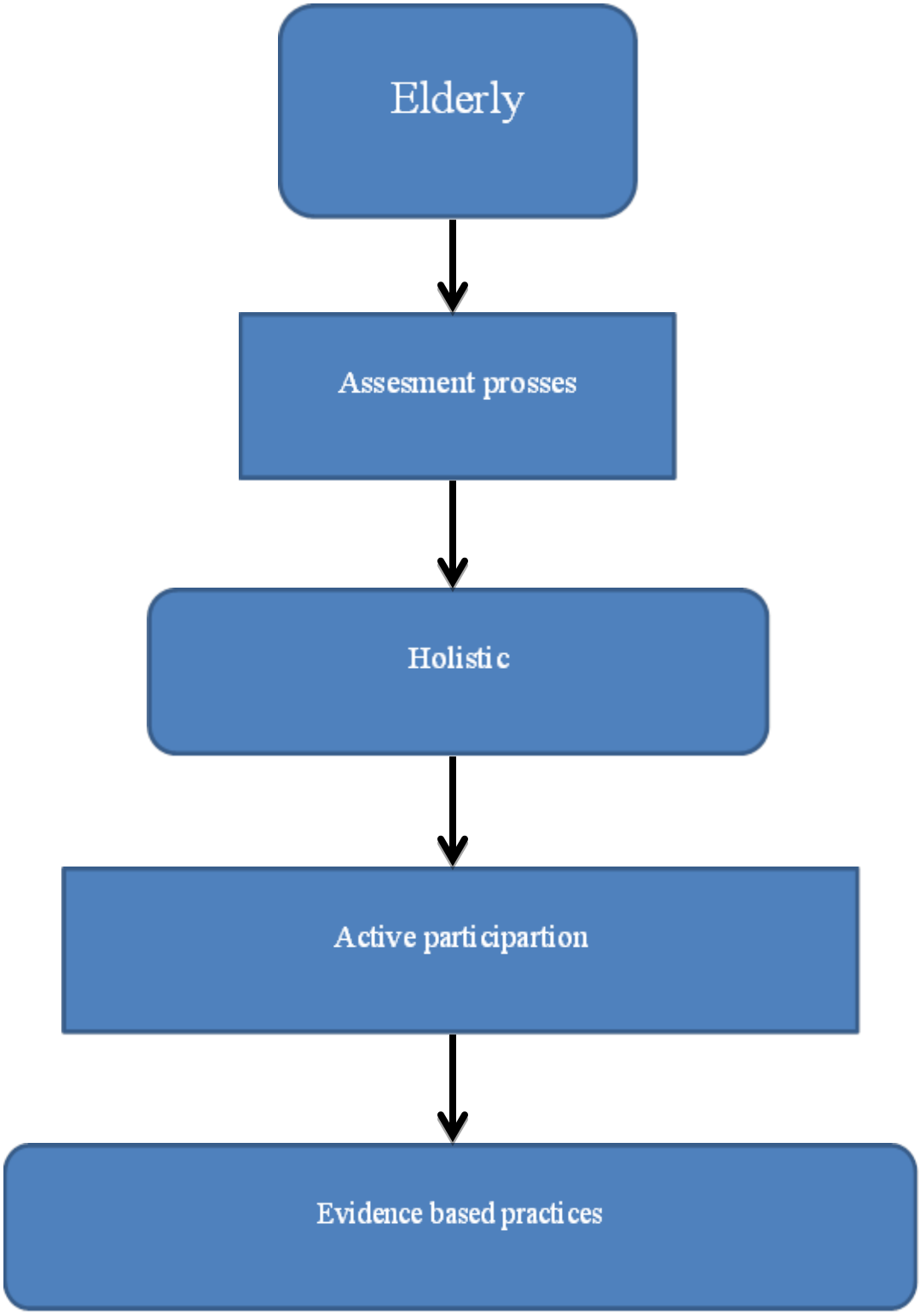


Figure 5 health promotion model Lis et al (2008). Evidence-Based Guidelines on Health Promotion for Older People

3.2 Quality of life

Quality of life is "is the general wellbeing that consists of objective description and subjective evaluation of physical, material, social and emotional well-being together with the extent of personal development and purposeful activity all weighted by a personal set of values".

"Quality of life is an individual's perception of his or her position in life in the context of the culture and value system where they live and in relation to their goals, exceptions, standards and concerns. It has a wide range of concept, taking in to account the complex way of a person's physical, psychological state, independence level, social relationship, personal beliefs and relationship to the features in the environment". (WHO 1994). Quality of life is mainly determined by the ability of older people to maintain autonomy and independence.

Autonomy it is the way one perceives the ability to control, cope with and make personal decisions how he/she lives on day to day basis according to rules and preferences (WHO 2002). While Independence is the ability to perform functions related to daily living with no or little help from others (WHO 2002)

Since health promotion and quality of life has been a significant indicator in health care field for measurement of health outcomes or consequences of care therefore in this thesis the two aspects a very much intertwined. (Bowling, 1998,)

There is no consensus over a definition of quality of life, " is a concept representing individual responses to the physical, mental and social effects of diseases on daily living that influence how much a personal is satisfied with the life's circumstances." (Bowling, 1998, p6). Physical, mental, social wellbeing and personal satisfaction about life are some of the health–related aspect in quality of life.

Therefore from the definition of these two concepts it is clearly seen that health promotion and quality of life are intertwined. A person cannot have quality of life if he does not have the tools or information to enable him to make decision on how to cope, or even control factors that may hinder his or her daily functions as an individual. Therefore people need the process of health promotion to live an autonyms and independent life.

3.3 Previous research

The researcher found hundreds of studies and articles done on osteoarthritis of the knees and hips with, how to manage them through exercises, early diagnosis of osteoarthritis symptoms and treatment done in Europe, the USA and some Asian countries

However there is no research study done on health promotion of elderly in Kenya or Africa with osteoarthritis this is because there have been little or no data in relation with epidemiology of rheumatic disease leave alone osteoarthritis. Also there is scarcity of rheumatologist in Africa hence there is need of better undergraduate and post graduate education on rheumatic disorder to prevent misdiagnosis of this diseases in the elderly. (Dr.G.O.Oyoo, 2004)

During the literature research the writer wanted to get a clear understanding of what osteoarthritis was how it affected the elderly and the health promotion strategies available. Therefore the research used the following books to get a proper understanding of the disease before searching for articles, journals and even more books on health promotion in osteoarthritis and the elderly.

A table of the previous research done on Health promotion and osteoarthritis in Kenya, Africa and in developed countries can be found on appendix one.

Table 6 Books from Ebray

Title	Author	Publication Date
All about Osteoarthritis : The Definitive Resource for Arthritis Patients and Their Families	Lane, Nancy E. Wallace, Daniel J.	03/2002
Pain in Osteoarthritis	Felson, David T. Schaible, Hans-Georg	07/2010
Managing Osteoarthritis in Primary Care	Hosie, Gillian Dickson, John	04/2008
Care of Arthritis in the Older Adult	Luggen, Ann Schmidt Meiner, Sue E.	09/2002
Burden of Musculoskeletal Diseases at the Start of the Millennium: Report of a WHO Scientific Report	World Health Organisation Staff	2003
Aging in Sub-Saharan Africa	Cohen, Barney Menken, Jane	2006
How to Stay Active and Relieve Your Pain	Stokes, Barbara Helewa, Antoine	10/2007
Health Promotion in Communities : Holistic and Wellness Approaches	Clark, Carolyn Chambers	17/2001
Health Promotion Theory	Davies, Maggie	12/2005
ABC of Rheumatology	Adebajo, Adewale	2009
Into Africa : A Guide to Sub-Saharan Culture and Diversity	Richmond, Yale Gestrin, Phyllis	01/2010
Management Of Pain In Older People	Schofield, Pat	10/2007
Osteoarthritis, Inflammation and Degradation: A Continuum	Buckwalter, J. Lotz, M. Stoltz, J. F.	11/2007
Pain in Osteoarthritis	Felson, David T. Schaible, Hans-Georg	07/2010
Quality, Evidence, and Effectiveness in Health Promotion	Davies, John K. MacDonald, Gordon	10/1998

3.4 Definitions

Health "*this is the general condition of the body or mind with reference to soundness and vigor''. (The American Heritage® Stedman's Medical Dictionary, 2002)*

"It can also mean the general condition of the body with respect to the efficient or inefficient discharge of functions: usually qualified as good, bad, weak, delicate, etc''. (Oxford University Press, 2012)

Promotion *"The action of helping forward; the fact or state of being helped forward; furtherance, advancement, encouragement'' (Oxford University Press, 2012). Therefore health promotion is the process of enabling people to increase control over, and to improve their health.*

Quality *"this is character with respect to fineness, or grade of excellence to something or someone''. (The American Heritage® Stedman's Medical Dictionary, 2002)*

Life *"is the condition or attribute of living or being alive; animate existence as Opposed to death or inanimate existence''. (Oxford University Press, 2012). "Also it is the state or quality that distinguishes living beings or organisms from dead ones and from inorganic matter, characterized chiefly by metabolism, growth, and the ability to reproduce and respond to stimuli Related''.(The American Heritage® Stedman's Medical Dictionary, 2002).Therefore quality of life is the grade of excellence to which people view themselves and purpose of living''.*

Autonomy "*this is liberty to follow one's will; control over one's own affairs; freedom from external influence, personal independence. (Oxford University Press, 2012). It also means freedom to determine one's own actions, behavior, etc.''. (The American Heritage® Stedman's Medical Dictionary, 2002)*

BMI (Body mass index): *"A measurement of the relative percentages of fat and muscle mass in the human body, in which mass in kilograms is divided by height in meters squared and the result used as an index of obesity''. (American Psychological Association (APA), 2002)*

Age: "*a period of human life, measured by years from birth, usually marked by a certain stage or degree of mental or physical development and involving legal responsibility and capacity''. (American Psychological Association (APA), 2002)*

Ethnic Groups: "*belonging to or deriving from the cultural, racial, religious, or linguistic traditions of a people or country''. (American Psychological Association (APA), 2002)*

Sex Ratio: "*The proportion of males to females in a given population, usually expressed as the number of males per 100 females at a specific stage in life, especially at conception, birth, and a given stage between birth and death''. (American Psychological Association (APA), 2002)*

Prevalence: "*condition of being widespread or general''. (American Psychological Association (APA), 2002)*

Labor force: "*the source of trained people from which workers can be hired''. (American Psychological Association (APA), 2002)*

Osteophytes: "*A bony outgrowth usually found around the joint area. Osteophytes are bone spurs that may arise from bone margins either in response to repetitive traction or osteoarthrosis affecting a joint margin''. (The American Heritage® Stedman's Medical Dictionary, 2002)*

Synovium this *"is a thin membrane in synovial (freely moving) joints that lines the joint capsule and secretes synovial fluid'' (The American Heritage® Stedman's Medical Dictionary, 2002)*

3.5 Kenya osteoporosis prevention and age concerned

This work is commissioned by Kenya osteoporosis prevention and elderly care service. This organizations aim is "to sustainably restore the glory and livelihood of the elderly people and those suffering from osteoporosis by creating a fund from which is to provide humanitarian assistance, rehabilitate and develop social and physical infrastructure for the care of the elderly and promote positive attitudes towards the elderly". This organization works to improve the attitudes towards elderly and their health issues.

4 METHODS

In this section the author shows how she choose the articles, explaining the methods used in building the study. The method used is systematic literature review; this is selecting literature that is relevant to the research study. The theoretical framework, background is important in developing the literature review in this study. The author uses content analysis to analyze the data found in previous research to build up to the study.

4.1 Literature Review

Literature review is a method of data collection that involves searching of articles and analyzing them through reading reports, books and published articles and journals. It is also a way of acquitting the writer on the available knowledge on the areas of interest.

Literature review in this study was used to expand the knowledge of the writer's on the previous studies.

"Literature review is a wide study and interpretation of literature that relates to a particular topic". Through summarizing and analyzing the related research results, literature review seeks to present an overview picture of this research field. (Aveyard,

2007)

4.2 Justification of research method

Being an armature in geriatric care research field, it is hardly possible to conduct a randomized controlled trail (RCTs) which is commonly used to determine the effectiveness of a treatment or intervention in health care research (Aveyard, 2007 p 26), therefore limitations such as, research experiences, time, financial funding, and accessibility to published literatures. Also because the reqiument needed for any qualitative study differs from country to country for researches especially students the writer felt it was appropriate form researching this particular topic.

When doing a literature review the writer of this literature basically brings individual researchers together to fill in missing information on specific topics. It takes in to ac-

count the weakness of a single research and how the impact and power of it cannot be determined. Therefore this literature review is a good approach to take for a novice researcher looking at the big picture in their study field.

4.3 Data Collection

The study involves searching for materials that can give background information about the topic and provide answers to the research questions. The writer decided to use systematic literature review as a method in so as to be able to control the big number of literatures that were collected and get the materials well-structured in a manner that will facilitate analysis of the data content.

There were three questions formulated for this research study to be as guide line in identifying material that was relevant to the topic at hand. The following are electronic database used in carrying out the literature search. Ebsco host, Ebray, Cinhal Ebsco, Google scholar and African Journals Online (AJOL) which helped in getting majority of the articles. These articles were published from the year 2002-2012.

The search for the articles and studies were done to include the following terms: Health promotion, osteoarthritis, Quality of life and management of osteoarthritis. The research articles were found from online databases Africa online journals, Academic Search Elite and Cinhal (Ebsco), Google scholar, and ebray

When searching for the research the writer used different search words and phrases. The following words gave scientific articles and relevant literature which was used in this thesis work: “Health promotion” and “osteoarthritis”, ”quality of life” and “osteoarthritis”, “risk factors ”and” osteoarthritis” .

Phrases used were “health promotion in elderly with osteoarthritis”, “osteoarthritis in the elderly”. “Osteoarthritis and quality of life in the elderly”, "Osteoarthritis in Kenya”, “Health promotion in Kenya”.

Books were used in finding theories to support the research which were very useful since the writer of this thesis found a clear understanding on which one to use. The

world health organization article on chronic disorders was also used in an effort to understand the spread and impact of osteoarthritis in the world. A part from the research question the writer formed two groups so as to narrow down the number of articles generated from the search by having an inclusion and exclusion criteria. The following were criteria used to include and exclude articles as illustrated in the table below

Table 7Inclusion and Exclusion Criteria

Inclusion criteria	Exclusion Criteria
1. Articles with abstract 2. Relevant article in relation with the topic 3. Written in English 4. Publication year 2002-2012 5. Free articles 6. Data base search from Ebsco host, Cinahl Ebscho, Africa Journal (EAJOL), Ebray, and Google scholar. 7. PDF Full Text	Articles without abstract Articles without topic relevance Articles without full text Articles with publication year before 2002 Not accessible even displayed as "full text".

The articles were systematically chosen to ensure the best available information and evidence relevant to the purpose of study making sure they answered the research questions.

The study is written in accordance with the writing guidelines of Arcada University of Applied Sciences. There is use of relevant references and also headings which have different format and font sizes.

Table 8 Electronic database used in article search

Data base	keywords or phrases	Hits	Limitation	Article Used
Academic Elite and Cihnal Ebsco	Health promotion in elderly with osteoarthritis	589	10	1
	Health promotion and elderly	17	5	2
	Osteoarthritis and the elderly	223	7	4
Google Scholar	Health promotion in elderly with osteoarthritis in Kenya	112	8	8
AJOL	osteoarthritis among elderly in Kenya	11	5	4
Ebray	health promotion in elderly with osteoarthritis in Kenya	15		13

4.3.1 Including criteria

The author was careful in including some criteria because these criteria will determine the quality of the study. In the search, there was a room to accommodate flexibility as to get material from other African countries as Kenya in particular did not have a lot of research done on osteoarthritis leave alone other rheumatic disorders.

Academic databases such as EBSCO, CINAHL, Ebray library and Google Scholar were strictly used for any research done that involved health promoting activities in elderly with osteoarthritis pharmacological and non-pharmacological. The writer also used Africa journal online to search for articles in Kenya and other African countries as there was very little published on the other sites concerning osteoarthritis in Africa as well as Kenya.

Year of publication was set from 2002 to 2012 the search was fruit full but the article were more or less talking about the lack of research and the prevalence of rheumatic disorders in Kenya a few talked about osteoarthritis in west African countries and studies done there. Therefore the articles chosen were osteoarthritis article in African in relation to the trade going on in Kenya.

The lack of the articles talking about health promoting actions for the elderly lead the author to use other researches done outside Africa as an example of what can be done in Africa and more so in Kenya as a way of promoting health in elderly with osteoarthritis.

4.3.2 Excluding criteria

The write excluded any research that was not human related even though it was on osteoarthritis. Also any research that dwelled with osteoarthritis that arising from complications of HIV/AIDS was excluded. This is because the age group that the author was targeting was a group that normally they are not in the high age group of young adult but all the same they could be secondary infected from taking care of their infected children and grandchildren. Also the writer excluded any material that was not scientifically written and all limited access material. The article used were put in a table and it can be found under appendix 2

4.4 Data/content analysis

This is an approach to the analysis documents and texts that seek to quantify content in terms of predetermined categories and in a systematic and replicable manner. It is also a research technique for making replicable and valid inferences from text to the contexts of their use. This method increases the researchers understanding of new facts and providing new insights. (Bryman 2004:181, Krippendorff 2004:18)

The main idea of data analysis is to get a clear understanding of the data being collected through reading the articles. The write read the abstract, findings, discussion and conclusion parts of the articles selected to retrieve information relevant to this study.

The data content of these articles was analyzed in a more structured way and two groups were developed based on the main themes of the article. Themes in a study could be simple sentences or just single ideas. Analyzing content is determined by the themes just as the direction of questionnaire is determined by the structure of the questions (Methodology manual 2012, p. 2).

There two main themes in this study health promotion and osteoarthritis all the questions revolve around this two. Using these two themes the study will try and answer the three questions in relation to them and the elderly.

4.5 Validity and reliability

Reliability is the ability of a system on a component to perform its required functions consistently or repeatedly (Kumar 2008). Here, reliability refers to the stability of the study outcomes and the tendency that the same data is produced multiple times irrespective of the method used by different authors.

While Validity refers to the extent in which the research method used in this project measures to the objectives set out to be measured at the beginning of the study. (Kumar 2008)The main objective of this study was to show the need for health promotion in elderly suffering from osteoarthritis and other joint disorders in Kenya. This means that other studies can use data produced by this study in their respective studies.

The study relied on scientifically published articles this was because the study was literature review, also the writer was still an undergraduate and had limited time to conduct an empirical research hence it was appropriate and more practical to do literature review. The data used to develop this study was carefully picked putting in mind the research questions. The articles chosen were directly related to the subject matters of the study,

Content analysis aided in the tabulation of the data into categories. Hence making the categorizations of the results relevant as well as corresponding to the research question and the objective of the study.

5 ETHICAL CONSIDERATION

The writer first presented her thesis plan to the supervisors concerned at Arcada University of Applied Sciences where permission was granted to continue with this study. The writer also read thoroughly Arcada ethical guidelines carefully as well as the rules and regulations of Helsinki Declaration (2004) so as to get a clear understanding of the ethical rules prior to conducting this study.

"Ethical means, in accordance with principal of conduct that are considered correct, especially those of given professional or groups."(Kumar 2005: p 210).

Ethical considerations that directly affected the subjects being studied for example; autonomy, anonymity and so on had already been taken care of by the primary investigator in the articles researched for this literature study.

This was a secondary analysis of pre-analyzed data so the ethical part has already been taken care of. This was confirmed by checking that these issues were taken into consideration in each of the article that was analyzed.

The writer made sure that in each article she chose the authors showed scientific rigor in their work as well as validity. The articles used to write this literature study were then put in reference avoid plagiarism. Also all quotation taken directly from the books, articles in this study or even oral quotations taken from talking to specialist in rheumatic disorders was quoted and written in italics form according to the Arcada rules of quoting direct quotations. There was no misuse or bias of information gathered from previous researches and the research process of this study was conducted keeping in mind high maintenance of professional standards and good conduct, adherences to ethical principles of justice and of respect to people and avoidance of harm to others.

6 RESULTS

Here question the writer will attempt to answer the two questions in relation to health promotion and quality of life in relation to osteoarthritis. The write uses tables to help in answering the question better. The results are not what can is done I Kenya but what can be done with the help of other studies done in the developed countries. This is because there was little research done on osteoarthritis and none at all done in regards with health promotion and quality of life in elderly with osteoarthritis. This is largely due to the factors below.

6.1 Factors affecting health promotion of osteoarthritis In Kenya

There are many factors affecting health promotion however according to the theory of health promotion and quality of life in respect to empowerment. In looking at health promotion in musculoskeletal conditions it is important to consider general indicators like age, geographical area and socioeconomic as much as the risk factors for musculoskeletal conditions. Other additional risk factors are occupation, family history, BMI, alcohol, smoking, diet and education. (World Health Organisation Staff, 2003). Therefore Health promotion activities are affected by all of the above factors.

According to the researches done on osteoarthritis reduction and delayed progression there are no formal studies of cost effective research in relation to weight reduction however other researches done on education and exercises programs for osteoarthritis available in developed countries have proven helpful in preventing osteoarthritis in women. This programs and education for osteoarthritis are not available in developing countries and Kenya being one of the developing countries faces the challenges' of a financially strapped health system with a growing number of elderly population.

However in developed countries the initial treatment with drugs is considered the most cost effective measure as seen in Sigal 2002 the cost for this treatment vary from US0$ 2001 to US$ 2140 per quality adjusted life year. Therefore this type of treatment is not affordable in developing countries (Jamison DT, 2006)

Table 9Factors affecting health promotion in elderly with osteoarthritis

Main	categories	Sub-Categogies	Cause
Knowledge	Education	doctors education patients education	Limited knowledge
Geographical area	Culture	language customs age	Customs / traditions
	Religion	Faith Evil spirits	No effort in seeking medical help
	Health sy-stem	lack of government interest on the elderly Distance staff education	Lack of resources' to cater for medical in-tervention poverty.in adequate allocation of funds
	Finances		

6.2 Education:

Education is vital in the management of a condition and illnesses such as osteoarthritis (OA), not only for doctors but also for patients and the general public. The more the public and patients knowledge of OA and understand the condition, the better the chances of having successful health promotion intervention. It is also more likely that the public and patient will seek professional help. (Hosie, 2008)

6.2.1 Doctors Education

According to research done by ILAR east Africa the care for rheumatic disorders is hindered by the lack of trained workforce and rheumatic centers in Kenya as well as the other countries in east Africa.

To provide optimal learning opportunities and create change in practices among physician ILAR east Africa conducted a needs assessment on physicians and it was found that out of 69 physician from 6 Kenyan cities about 91 % were confident in carrying out cardiovascular exam verses musculoskeletal disorders. Therefore there is increase need to improve the knowledge of physicians simultaneously with patient education.

6.2.2 Patient education:

Patient education and information access is professional responsibility; this should include the nature of OA management strategies of OA, prevention strategies and prevention advice. Pain is the usual presenting symptom for patients with OA, when they arrive to the General practitioners' they want them to help deal with this condition. However they mostly expect that they must will be given a drug treatment, almost to validate their problem. (Hosie, 2008). Therefore in patient education progamme should also include advice on self-management strategies'.

In some of the studies done in Africa the myth that OA is a progressive wearing-out of joints due to old age still persists; this invariably leads to inappropriate reductions in

activity. (Adebajo, 2009). Also the belief that OA is caused by evil spirit is still very much rooted in the African communities. (A.O.Akinpelu & T.O.Alonge, 2011)

Just as the physicians in Kenya have limited knowledge about rheumatic disorders the patients also lack proper knowledge about this condition. Hence creating awareness about rheumatic disorders is of utmost importance in the aging community as well as the county as a whole. This will help to promote self-management measures and early identification of conditions that require medical assessment. In return it will reduce the impact of pain not only osteoarthritis but also other rheumatic disorders and improve poor quality of life. (Journal of the International League of Association for Rheumatology, 2010)

6.3 Geographical area

Geographical area is important in health promotion because in order to have successfully health promotion strategies' knowledge of the place geographical is important. As mentioned earlier in the background the geographical position of the Kenya is well explained and the important areas to understand when it comes to health promotion and Kenyan elderly are the culture (customs and tradition), language and age

6.3.1 Culture:

When talking about culture ethnicity comes up this is because ethnicity is part of culture and in Africa ethnicity is at the heart of African diversity. Africa has ethnic groups, known as tribes. This ethnic groups or tribe embrace some local villages, districts, lineages, and other social groupings usually they share cultural values. (Richmond, 2010).

Therefore to have successful health promotion strategies, the cultural aspects have to be taken in to consideration. The main cultural aspects that play major role in health and more importantly health promotion are age, language and traditions/ customs.

This is because culture affect and determine individual and community behavior, it also detects the belief carried by a person therefore the decision to seek medical help or not depend entirely on what the cultural beliefs are about elderly and being old this to can

affect how the GP and primary careers of the elderly provide health promotion intervention. For example if GP beliefs joint pain is part of normal aging he might not investigate further to find out the main problem.

This situation is too common in Kenya as Dr Oyoo explained to the writer the elderly and the General practitioners all on sider joint part of normal aging and unless the elderly goes to hospital with some serious complication like falling, high blood pressure or even asthmatic attack the probability of joint pain being diagnosed is rare.

A lot of the African societies are organized and stratified in regards to descent, age and gender this helps in setting apart of roles. The elderly in Kenya like all the other African countries are regarded with respect and there words are regarded to be of wisdom power and authority. (Richmond, 2010)

6.3.2 Religion

Religion revolves around all aspects of African traditional societies. This is the one aspect that the whole community is involved. Religion in Africa explains and gives meaning to the world and surrounding people in African live in. there three categories that religion fall in in Africa Christianity, Islam, and traditional African religion. The first two believe in a high power while the last one believes in spirits (good and evil), divination and magic.

"As John S. Mbiti, a Kenyan-born Anglican priest explains: It is the knowledge of this mystical power which is used to help other people (especially in healing, rainmaking, finding the cause of misfortunes and troubles, detecting thieves, and so on) or to harm them. When it is used harmfully, it is regarded as evil magic, witchcraft or sorcery; and it may also be used in curses''. (Richmond, 2010).

Spirituality can hinder health promotion strategies and activities if the person teaching the health promotion activities does not understand the significance of the religion to the persons. Also if there is ability to provide care with sensitivity to the beliefs is lacking, it can prove to be counterproductive in health promotion strategies. (Clark, 2001)

As seen in the article by Akinpelu from Nigeria 22.2% believed that OA was as a result of evil spirits while 37% believed it to be due to old age. This proves that culture tradi-

tions and religion have strong hold in Africa. Further reading about the cultures and traditions of Africa and Kenya can be found in the book Into Africa by (Richmond, 2010)

Language

Kenya has 42 tribes and over 42 languages some tribes have up to 23 different dialects. This being the case in order for health promotion to be carried effectively there must be information available in all the languages especially because a large number of the elderly in Kenya are illiterate or have minimal education.

6.4 Health system

Health system can pose as a hindrance in relation to health promotion especial if there are no qualified health service personnel conversant with the particular disease that needs health promoting strategies like OA in Kenya. According to Dr oyoo *"Rheumatic research is still a novelty in Kenya in fact there are only 4 rheumatologist in the whole country partly because rheumatic disorders are associated with aging and not no elderly will go to hospital to be checked for joint pains. We need hospitals and more education on rheumatic disorders not only for the elderly but also for general practitioners. This is because it is the clinical officers and general practitioners that come in first contact with this elderly people''.*

6.5 Finance

Osteoarthritis management involves non-pharmacological and pharmacological intervention. And in order to have a successful intervention it requires financing in one way or another for example to have a proper education programme it means educational courses for care givers and health providers.

The treatment of OA is usually costly and leads to economic burden. If there is no proper health system to subsidize the coast of treatment and education for the patients it might lead to physical disability, as well as emotional disability. As also it affects how the research involving health promotion of OA are carried out

According to the authors experience health promotion activities in Kenya face hindrances from the above factors more than any developed countries this is because unlike the developed countries elderly in Kenya have no knowledge of what OA is and how it affects their life. They assume that they have deformed joints as a result of evil spirits, they are old and do not need to correct or prevent the deformities for it is the will of high powers for example (God or Allah).

Also culture contributes a lot in some tribes in Kenya for there are some tribes that believe in traditional healing as their ancestors' believed hence the tradition are set deep and are had to change. Also language is a big hindrance in health promotion among the elderly this is because in spite of the country having only42 tribe a majority of the elderly only know and understand their mother tongue from their own tribes not the two national languages used in the country. This can prove to be challenging to health promotion providers as well as the elderly in need of the services.

7 IMPACT OF OSTEOARTHRITIS ON QUALITY OF LIFE AMONG THE ELDERLY IN KENYA

In order to understand the quality of life in relation to osteoarthritis there is need to understand the overall impact of OA and its treatment on patients, together with their responses. The impact of OA in relation to quality of life results pain, stiffness, loss of mobility of the joints, deformity, disability, causes dependency, depression, loneliness, and sometimes even death. However quality of life is not only measured by illness in this case OA but also socioeconomic, personal, environmental and other factors.

People with symptomatic OA usually suffer reduced quality of life this is because factors such as pain and other symptoms of OA may have a great effect on quality of life. This happens when they affecting both physical function and psychological well-being of an elderly person with OA. Main symptom of OA is pain, In order to improve or maintain quality of life in elderly with osteoarthritis. There is need to understand how to manage pain, socioeconomic, personal environmental and other factors affecting quality of life in elderly with OA.

The economic, social economic factors that accompany OA quality of life are treatment and decreased life expectancy related in terms of cost costly to the individual and society. OA is a disease that needs a combination of pharmacologic and non-pharmacologic treatments in order improve or maintain quality of life.

Below is a table showing how much studies have been done on factors affecting quality of life in developing.

Table 10 Indicators of risk and impact in developing countries (World Health Organization Staff, 2003)

Indicator	Data available for the populations of these countries			Data not available for the populations of these countries but possible to collect		
Risk factors	Most	some	few/none	most	some	few/none
Smoking			X			
Alcohol			X			
Body mass index			X			X
Family history			X			
Impact activities						
Independence/disability			X			
Activities of daily living/ essential self-care			X			
Complex activities of daily living/leisure			X			X
Quality of life						
Physical dimension		X				
Mental dimension/ psychological well-being			X			X

The impact of OA on quality of life among the elderly can be viewed in terms of the social and or economic burden The social and economic impact of OA is substantial as seen on table 11 and 12.Because OA is the most common form of arthritis, it is responsible for disability in elderly around the world proper health promotion interventions are needed to improve and maintain quality of life for elderly with OA. OA most commonly comes from physical trauma its impact is great in terms of physical, psychological and social well-being in the elderly.

The economic impact of OA ranges from direct costs in as a result of buying drugs, medical care and hospitals treatment as well as research. On the other hand there is also

the indirect coast incurred as a result of lost jobs due to chronic pain as well as disability arising from pain and other symptoms of OA.

Table 11Atable showing the social and impact of OA in the elderly as well as the society

Social Impact	Economic Impact
Disability and pain (chronic/short-term)	Direct costs
Decreased ability to perform activities of daily living	Non-pharmacological/ pharmacological treatment
Decreased overall quality of life	Hospital resource use
Premature mortality	Caregiver time
Indirect costs	Management of side-effects caused by pharmacological treatments for osteoarthritis
Increased depression/anxiety Research	Decreased productivity
	Increased depression/anxiety Research
	Disability compensation/pension/benefits
	Lost time from work

Social Impact

Osteoarthritis affect the quality of life socially by rendering the elderly or patients suffering from OA disable through pain. This is because physically they are not able to function due to pain and physiologically pain can lead to depression anxiety and feelings of helplessness. This happen because functional capacity is reduced, lack of coping ability also may lead to decrease quality of life

Economic Impact

This part of quality of life affects not only the people suffering from OA but as the society as well. In the case of the elderly with OA they become incapable of performing they duties at work, the cost of treatment also burdens them in case of lack of a proper medical cover. However the society suffers equally as the affected person this is because people retire early and the burden of pension and disability funds increase in terms of payment. Also to implement proper non –pharmacological treatment it takes time to learn this intervention not only for the patient but also family and friends who are affected this eats it in which the economy would be growing in terms of development.

There are many side effect attached to pharmacological treatment this includes such illnesses as hypertension and even mortality.

Therefore osteoarthritis impact on quality of life is very extensive and not simple because to maintain or improve quality of life all aspects of life are involved and in OA it means both social and economic factors will be influence and affected to some extent.

As seen from the table above quality of life is usually impacted in two main ways socially and economically. However it is hard to estimate to what degree has the quality of life of the elderly in Kenya suffering from osteoarthritis has been affected this is due to the fact that the country has no studies done on quality of life in elderly with osteoarthritis.

Therefore according to the Author of this paper she believes that elderly are affected economically and socially just as much as the elderly in developed countries and it can be even more server in Kenya due to the health system and financial strain in the country. However a more scientific study needs to be done to provide a more reliable result as to the impact of osteoarthritis on quality of life among the elderly in Kenya.

8 DISCUSSION AND CONCLUSION

Health promotion involved many sectors to improve and maintain health. It is not only the responsibility of the government in making public policy but also individuals suffering from OA the society affected by OA as well as the doctors. The patients have to be more courageous in asking the doctors what is wrong with them. This is relay done in Kenya for people believe the doctors are writing and as seen in the chapter about osteoarthritis in Kenya very few doctors are comfortable in diagnosing OA.

There are so many interventions that can be put in place for elderly with osteoarthritis and these interventions have proven to be effective in other international countries if just introduced early. However it is a long way before this intervention can full work in Kenya leave alone Africa therefore using information gathered from previous research done in the western countries the writer is going to discuss some of the intervention that are cost effective and practical in implementation in Kenya and other countries in Africa. The writer is goes through the cost effective intervention mentioned in the articles used in chapter 6 about factors affecting health promotion.

From the background chapter it is clear to see that the economy of Kenya lies in agriculture which accounts of about 75% and industries and service sector about25%.This economy is sustained by people working in their farms for long periods. This id due to the weather seasons that only allows the people to rest during the months that are not rainy but not completely for there is the harvesting periods that puts stress and strains on joints .Therefore the elderly in Kenya are a very much affected by osteoarthritis as result of occupation hazards.

The implementation of health promotion intervention in Kenya may involve multiple strategies first the most important is education. This is because not only does it empower the doctors the patients and society information about OA but it also helps them to cope with the condition as well as maintain treatment plan and reduces stress on the

joints. Knowledge of OA can help the patients reduce their level of anxiety and feel self-worth to be social active in the society too.

There are other strategies which are also vital and important such as advocacy, exercises, public policies as well as tertiary treatment (medicine, surgery) related.
Kenya is not there yet therefore education on what is OA is essential and much needed to be able to have a proper epidemiology then treatment can begin. In this case non-pharmacological treatment may be best suited in this country because of its financial strain especially on the health care sector.

It was hard to find literature pertaining to health promotion in elderly with osteoarthritis in Kenya this was mainly due to the fact that not until 2004 was there any research done on rheumatic disorders and also a lot of the this disorders are still being handled by orthopedic doctors . Also the fact that not many people in Kenya don't know about rheumatic disorders and the ones that know were diagnosed by accident. Show that a lot of elderly are suffering due to lack of knowledge leading to disability that could be prevented, maintain function and mobility and also quality of life.

According to doctor Oyoo "*Rheumatic research is still a novelty in Kenya in fact there are only 4 rheumatologist in the whole country partly because rheumatic disorders are associated with aging and not no elderly will go to hospital to be checked for joint pains. We need hospitals and more education on rheumatic disorders not only for the elderly but also for general practitioners. for it is the clinical officers and general practitioners that come in first contact with this elderly people".*

I acknowledge that the results could be expounded a little bit more however the lack of research in Kenya makes it difficult to get the exact impact of osteoarthritis on elderly people in Kenya. I could use my personal experience with the elderly I met during my practical training in Kenya however that would not be scientific and unethical therefore using an analysis of articles and studies done in developed countries i got the results discussed above.

8.1 Recommendations

More studies need to be done on health promotion in elderly with osteoarthritis this is because Kenya being an agricultural country the biggest risk factor for OA is occupational hazard and it is hard to change this unless one can know how to cope with this condition without being dependent on hand outs.

Kenya can use the studies done on management of osteoarthritis in the western countries combined with the knowledge about Kenya this studies can be used as stepping stone to educate the primary care givers(GPs)on signs and symptoms of OA and how to self-manage and cope , so as to live full active and productive life. This will enable them to take care of the elderly who are now the majority care givers for they Hiv infected adult children and grandchildren.

Also for those who are not care giver they will not have to wait for the children to come take care of them because they are not able to function.

8.2 Conclusion

When talking about health promotion in elderly with osteoarthritis it is hard not to look at the impact of OA on quality of life as well for this two concepts are very much inter twine when it comes to diseases and illness. In Kenya for health promotion to be effective it is important the religion, language, culture and the geographical location of the elderly is considered before starting any health promotion programmes

Being a Kenyan the above part has been written from my own point of view because our country has a lot of ethnical group and as much as the cultures might be a bit similar they can also be completely different.

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BILAGOR / APPENDICES

Appexi 1

Author/sources	Article	*Result found*
Richard F. Loeser	Age-Related Changes in the Musculoskeletal System and the Development of Osteoarthritis	*"Rather than directly causing OA, aging changes in the musculoskeletal system contribute to the development of OA by making the joint more susceptible to the effects of other OA risk factors that include abnormal biomechanics, joint injury, genetics, and obesity. Age-related sarcopenia and increased bone turnover may also contribute to the development of OA. Understanding the basic mechanisms by which aging affects joint tissues should provide new targets for slowing or preventing the development of OA''.*
	Chronic Pain in the Elderly: Occupational Adaptation as a Means of Coping with Osteoarthritis of the Hip and/or Knee	*"Individuals reported two approaches to occupational adaptation: they changed how they performed personal activities of daily living that they rated as most important and they stopped performing a number of vocational activities that they rated as less important. Statistically significant correlations were found among occupational adaptation, pain, depression, and difficulty with functioning. These variables were inversely related to life satisfaction''*
Agency for Healthcare Research and Quality	Managing Osteoarthritis: Helping the Elderly Main-	*"Agency for Healthcare Research and Quality (AHRQ) indicates that treatment involving patient self-management, occupa-*

	tain Function and Mobility	*tional therapy, pharmaceutical therapy, and surgery can reduce pain, maintain or improve joint mobility, and limit functional disability. AHRQ's research shows how elderly patients with osteoarthritis can become more active and responsible for their own care, make more informed decisions, help to control the costs of health care, and improve their quality of life''.*
Dr.Talhatu.K.hamzat,Mr .Adeolu O.Ajala	Interaction between anti-hypetensive and non-steroidal inflammatory drugs: Implication in management of osteoarthritis and opinion on a compromise therapy.	*"In order to avoid complication in the health of the patient with concomitant hypertension and osteoarthritis and who are both anti-hypernsitive and NSAIDs, it becomes imperative to consider using non-pharmacologic approaches such as physiotherapy in managing the symptoms of osteoarthritis in this group and thereby maximizing the effects of the anti-hypersensitive therapy. This is more so that the information exists on efficiency of physiotherapy in form of therapeutic exercises and electrotherapeutic modalities in management of clinical features of osteoarthritis''.*
Hart LE, Haaland DA, Baribeau DA, Mukovozov IM, Sabljic TF.	The relationship between exercise and osteoarthritis in the elderly.	*"Nuances of study design, differences in age and type of target populations, variability in the intensity, duration, and nature of physical activity in the respective studies, and lack of standardization in the way radiographic data are interpreted are among the factors that prevent consensus regarding the effect of physical activity on later*

		development of OA. Similarly, there is considerable heterogeneity in the studies that assessed exercise in the treatment of OA. Nonetheless, there is substantive evidence in support of the benefits of one or another strength training or aerobic exercise regimen in the management of OA in middle-aged and elderly subjects''.
Victor Valderrabano and Christina Steiger	Treatment and Prevention of Osteoarthritis through Exercise and Sports	*"As overall conclusion, OA is a multifactorial disease with a pathogenic link to muscle function and volume that is not entirely understood. Over the last decade, research has provided data supporting the hypothesis that exercise is not the reason for OA but rather delays onset and alleviates symptoms of the disorder. Furthermore, several studies have shown that muscle weakness is a predisposing factor for OA and that muscle atrophy is a common finding in OA. Changes in cartilage structure have also been investigated, and it was determined that in order to remain firm a certain amount of muscle exercise was needed. Taken into account all the above mentioned data, this would argue that exercise and sports should be used in the prevention and also in the treatment of OA and aging people. To determine which type of exercise would be most appropriate, various studies were carried out. It was shown that aquatic exercise was beneficial only in the beginning and in obese people whereas*

		land-based aerobic and strengthening exercises had a continuous effect for as long as they were carried out. Once exercise is discontinued, all the beneficial effects that come with it vanish as well. Thus, the authors strongly believe that any additional measures that help to motivate patients to continue sports, such as training schedules, group exercises, or instructional sessions with physiotherapists are of crucial importance. To date, many studies have been carried out investigating the effect of exercise on the progression of OA. Although alleviation of pain has been shown to occur upon regular exercise, the minimal intensity of training necessary for such a positive effect still needs to be determined. Therefore, one of the biggest challenges still remains to understand the pathogenesis of OA in order to prevent the onset or find further treatments for this debilitating disorder''.
Ersek, Mary PhD, RN; Turner, Judith A. PhD, McCurry, Susan M. PhD, Gibbons, Laura PhD; Kraybill, Beth Miller	Efficacy of a Self-Management Group Intervention for Elderly Persons With Chronic Pain	*"The self-management group showed significantly greater pre- to post-treatment improvement in physical role function (P = 0.04) and characteristic pain intensity (P = 0.02). No significant differences were found between groups on measures of pain-related activity interference, depression, and pain-related beliefs. Improvement in characteristic pain and physical role function was not associated with baseline depression scores, pretreatment expectations,*

		or changes in pain-related beliefs''.
.David J. Hunter, Felix Eckstein	Exercise and osteoarthritis	*"Despite the common misconception that exercise is deleterious to one's joints, in the absence of joint injury there is no evidence to support this notion. Rather it would appear that exercise has positive salutory benefits for joint tissues in addition to its other health benefits. It is important to individualize exercise therapy for hip or knee OA, particularly considering individual patient preference, and ensure that adequate advice and education to promote increased physical activity is provided (American Geriatrics Society Panel on Exercise and Osteoarthritis 2001, 2003; Roddy et al. 2005a). As adherence is the main predictor of long-term outcome from exercise in hip or knee OA, strategies to improve adherence should be adopted, such as long-term monitoring. Similarly, patients should do exercise they enjoy to promote long-term participation. Some exercises are likely to be harmful in the long term, particularly those that involve high velocity impact (running, step aerobics, etc.) on an already injured joint surface; thus these should be actively discouraged''.*
Yuqing Zhang, D.Sc and Joanne M. Jordan, MD, MPH	Epidemiology of Osteoarthritis	*"Evolving definitions of OA and improvement in risk factor measurement, by utilizing advanced imaging, systemic and local biomarkers, and improved methods for*

		measuring symptoms and their impact, can help to elucidate mechanisms and identify potential areas for intervention or prevention. The application of these new sources of knowledge about the OA process holds promise for the development of new, potentially disease modifying pharmaceuticals and non-pharmacologic therapies''.
Kate R. Lorig DrPH Senior Research Scientist, Peter D. Mazonson MD, MBA Vice President, Halsted R. Holman MD Professor	Evidence suggesting that health education for self-management in patients with chronic arthritis has sustained health benefits while reducing health care costs	*"Results. Pain had declined a mean of 20% and visits to physicians 40%, while physical disability had increased 9%. Comparison groups did not show similar changes. Estimated 4-year savings were $648 per rheumatoid arthritis patient and $189 per osteoarthritis patient''.*
Stukstette, MJPM, Hoogeboom, TJ,de Ruiter, R Koelmans, P1,Veerman, E, den Broeder Bijlsma, JW, Dekker, J, van den Ende, CHM1	A multidisciplinary and multidimensional intervention for patients with hand osteoarthritis.	*"A non-pharmacological multidisciplinary and multidimensional treatment programme for patients with hand osteoarthritis was developed. Further research is necessary to investigate the effectiveness of this treatment programme. Currently, the programme is being evaluated in an ongoing randomized clinical trial''*
V. M. FERREIRA & A. M.	The relationship of optimism, pain and social support to well-being in older adults with osteoarthritis	*"In summary, our results indicate that pain has a complex relationship with facets of well-being, both life satisfaction and freedom from depressive symptoms, in older adults experiencing OA. That is, the effect of pain on perceptions of well-being is in-*

		fluenced by both personality and social relations variables''.
Osborne, Richard H. Buchbinder, Rachelle	Can a disease-specific education program augment self-management skills and improve Health-Related Quality of Life in people with hip or knee osteoarthritis	*"Using an innovative design combining both quantitative and qualitative components, this project will provide high quality data to facilitate evidence-based recommendations regarding the ASMP''.*
Victor, Christina R., Ross, Fiona, Axford, John	Capturing lay perspectives in a randomized control trial of a health promotion intervention for people with osteoarthritis of the knee.	*"However, all the studies do seem to demonstrate that people with OA present signficant information deficits in terms of their understanding of the disease, its management and how the disease may progress''.*
Eva Ekvall Hansson, Malin Jönsson-Lundgren, Anne-Marie Ronnheden, Eva Sörensson, Åsa Bjärnung, Leif E Dahlberg	Effect of an education programme for patients with osteoarthritis in primary care – a randomized controlled trial.	*"We found differences between the intervention group and the control group, comparing the results at baseline and after 6 months in EuroQol-5D ($p < 0.001$) and in standing one leg eyes closed ($p = 0.02$) in favors of the intervention group. No other differences between the groups were found. Conclusion: This study has shown that patient education for patients with osteoarthritis is feasible in a primary health care setting and can improve self-perceived health as well as function in some degree, but not self-efficacy. Further research to investigate the effect of exercise performance on function, as well as self-efficacy is warranted''.*

Wu, Shu-Fang Vivienne, Mu-Jung Kao, Meng-Ping Wu Mei-Wun Tsai,Wan-Wen Chang.	Effects of an osteoarthritis self-management programme.	*"The study supports the hypothesis that a self-management programme enhances arthritis-related self-efficacy and pain beliefs. A decrease in the number of unplanned medical consultations, pain days and disability days suggests that the programme might help reduce healthcare costs. In short, there were great beneficial effects on self-management among persons who are affected by knee osteoarthritis''.*
Derek Chambers & Susan Thompson	Empowerment and its application in health promotion in acute care settings: nurses' perceptions	*"Two types of practitioner were identifying: Type I divergent nurse health promotion practitioner and Type II convergent nurse health promotion practitioner. The main factor distinguishing the two types was the way in which they conceptualized the verb 'to empower''.*
S. H. Hassanali, G. O. Oyoo,	Osteoarthritis: a look at pathophysiology and approach to new treatments: a review	*"Although osteoarthritis is characterized by cartilage degeneration, changes also involve the synovial membrane and the subchondral bone. Evidence suggests the involvement of a number of factors in the pathogenesis of osteoarthritis, like the proteases, inflammatory cytokines, nitrous oxide, calcium crystals, leptin, angiogenesis and T cells and in turn using some of these to formulate some of the potential for new treatments for osteoarthritis''.*
M. A. NYANGWESO Source: Aging & Mental Health	Transformations of care of the aged among Africans: a study of the Kenyan situa-	*"The vast majority of people thought that traditionally the aged were respected and revered. Despite this nearly three-quarters*

	tion	*felt that the aged were inactive and almost all said that the aged had withdrawn from society because they felt they did not belong. This suggests that more should be done to help the aged remain active and be more involved in society in general''.*
Roy Davis Altman, Md	early management of Osteoarthritis	*"This review summarizes some of the knowledge we have today about the possibility of achieving therapeutic interventions that can modify the natural course of OA. The numbers of options currently available are clearly quite limited. However, with major advances in our understanding of the disease process and with the recent development of new technologies that can be used to assess and quantify the evolution of structural changes in OA accurately, all of the elements to successfully develop new and effective DMOADs are now in place. It is now just a matter of time before a definitive cure for OA is found''.*
.Dr G.O.Oyoo, Ajol	Rheumatic disorders in Kenya : spectrum of diseases use	*"of 767 patients seen with rheumatologic complains , most of them (67.1%) were females, the peak age was 51-60 years. 40% of the patients had osteoarthritis ,23% rheumatoid arthritis ,10 % had low back ache,14% had soft tissue rheumatism while 4.43% had spodyloartropathy''.*
A.O.Akinpelu EAJOL	Prevalence and pattern of knee osteoarthritis in north eastern Nigeria rural com-	*"229 participants age 30 and above were diagnosed as having knee OA giving point of prevalence of 16.3% .while the preva-*

	munity	*lence of symptomatic OA was 40.1% for female and 13.5% for male participants. for those above 40 years the prevalence was 20.6% . knee OA severity was higher in participants age 50 and above than those age 60 years and above. female participants had significantly more severe knee OA than males. Obese participants by BMI classification and percentage body fat classification had significantly more severe Knee OA than participants who were overweight or with normal weight. The beliefs of participants about the cause of knee OA are old age 37%, evil spirits22.2%and hereditary19.2%. traditional medicine was the most common health care services utilized by participants and doctors' consultation was the least. age 50and above''*

Susann Arvidsson, Barbro Arvidsson, Bengt Fridlund and Stefan Bergman	Factors promoting health-related quality of life in people with rheumatic diseases: a 12 month longitudinal studie	*"Factors predicting better outcome in HRQL in one or several SF-36 subscales were being younger or middle-aged, feeling painless, having good sleep structure, feeling rested after sleep, performing low effort of exercise more than twice per week, having strong sense of coherence (SOC), emotional support and practical assistance, higher educational level and work capacity. The most important factors were having strong SOC, feeling rested after sleep, having work capacity, being younger or middle-aged, and having good sleep structure''.*
BRIDGET HODKINSON, MB BCh, FCP (SA), Cert Rheum Johannesburg	Osteoarthritis in 2011: Many steps to climb	*"of OA has opened the door to the possibility of developing new targeted treatments for the disease, and currently there are at least 33 clinical trials underway exploring novel therapies for symptom and structure in OA.20 Drugs interfering with inflammatory cytokines (anti-IL-1 and IL-6, anti-TNF) or pain pathways (anti-nerve growth factor antibody), and subchondral bone molecules such as calcitonin and strontium granulate, are possible future directions of therapy for OA. Compared with the other rheumatic diseases, pharmacological treatment for OA is relatively unsatisfactory.20 Clearly, with more than a quarter of people over the age of 65 suffering from OA, there is a need for new therapies. For*

		now, much of the answer lies in avoiding the progression of OA, chiefly through non-pharmacological approaches: avoidance of obesity, exercise, podiatry and assistive devices to address joint malalignment with maintenance of muscle strength, and in sensible use of analgesics''
Aderonke O. Akinpelu; Oyindamola O. Alonge, Babatunde A.Adekanla and Adesola C. Odole	Pattern of Osteoarthritis Seen In Physiotherapy Facilities in Ibadan and Lagos, Nigeria	*"Our findings suggest that osteoarthritis is a common condition seen in physiotherapy facilities in Lagos and Ibadan, Nigeria, accounting for about 9% of referrals; it is more common in females than males in the ratio 3.5:1 and the knee is the most frequently affected joint''.*
Enohumah KO and Imarengiaye CO	Pain in Osteoarthritis	*"It is clear from the foregoing that any simple unitary concept about the link between joint damage and symptoms in osteoarthritis is untenable. We are faced with a complex interaction between local events in the joint, pain sensitization, the cortical experience of pain, and what people are doing in their everyday lives''*

J. Kingori, MBChB, MMed (Ortho), Consultant Orthopaedic Surgeon, PCEA Kikuyu Hospital and L.N. Gakuu,	TOTAL HIP REPLACEMENTS AT KIKUYU HOSPITAL, KENYA	*"Of the 97 patients seen 99 operations were done and there were, two dislocations, two superficial and one deep wound infections, one upper gastro intestinal bleeding, two Deep Vein Thrombosis, one sciatic nerve neuropraxia, one haematoma formation and one intraoperative femoral fracture. Out of the 97 patients 40 of them had the surgery performed more than six months after a proper diagnosis was made and hip arthroplasty recommended. This is mainly due to lack of finances. At operation two cases were really difficult and took longer than the usual timing''.*
Matthew W Rogers (MS) Nauris Tamulevicius (PhD) Stuart J Semple (PhD) Marius F Coetsee (PhD) Beth F Curry (BS)	Comparison of clinic-based versus home-based balance and agility training for the symptoms of knee osteoarthritis	*"Adherence was 94% in both conditions. KBA improved PF in both CB (59%; 18±12.5 pts; p=0.008) and HB (33%; 7.3±7.5 pts; p=0.03), with no difference between conditions. All outcome improvements were somewhat larger for CB, but these differences did not reach statistical significance''.*
.Jill Dawson ,Ray fitzpatrick	osteoarthritis affecting the hip and knee	*"Until relatively recently, a fundamental reason for the lack of adequate outcome studies in OA and OA-related orthopedic surgery, has been to do with the lack of standard acceptable outcome measures. For example, the sensitivity and interpretation of methods used to measure and assess outcomes for OA has often been fairly*

		crude and it has become increasingly clear that clinical assessments of key aspects of outcome (e.g. pain, physical function, range of joint movement) are often inaccurate and not reproducible. Clinical assessments may also overly represent concerns of the clinician, rather than those of the patient''.

Appendix 2

Author/ published Year	Article	*Result*
Dr G.O.OYoo	Rheumatic Disorders in Kenya: Spectrum of Diseases.	*"Out of 767 patients seen with rheumatologic complains 67.1% were female. The peak age was 51-60 years age group.40% had osteoarthritis, 23% had rheumatoid arthritis, 10% had low backaches,14 % had soft tissues rheumatism while 4.43% had spndyloarthropy''.*
BRIDGET HODKINSON, MB BCh, FCP (SA), Cert Rheum Johannesburg AJOL	Osteoarthritis in 2011: Many steps to climb	*"Improved understanding of OA has opened the door to the possibility of developing new targeted treatments for the disease, and currently there are at least 33 clinical trials underway exploring novel therapies for symptom and structure in OA.20 Drugs interfering with inflammatory cytokines (anti-IL-1 and IL-6, anti-TNF) or pain pathways (anti-nerve growth factor antibody), and subchondral bone molecules such as calcitonin and strontium granulate, are possible future directions of therapy for OA. Compared with the other rheumatic diseases, pharmacological treatment for OA is relatively unsatisfactory.20 Clearly, with more than a quarter of people over the age of 65 suffering from OA, there is a need for new therapies. For now, much of the answer lies in avoiding the progression of OA, chiefly through non-pharmacological approaches: avoidance of obesity, exercise, po-*

		diatry and assistive devices to address joint malalignment with maintenance of muscle strength, and in sensible use of analgesics
Susann Arvidsson, Barbro Arvidsson, Bengt Fridlund and Stefan Bergman	Factors promoting health-related quality of life in people with rheumatic diseases: a 12 month longitudinal study	*Factors predicting better outcome in HRQL in one or several SF-36 subscales were being younger or middle-aged, feeling painless, having good sleep structure, feeling rested after sleep, performing low effort of exercise more than twice per week, having strong sense of coherence (SOC), emotional support and practical assistance, higher educational level and work capacity. The most important factors were having strong SOC, feeling rested after sleep, having work capacity, being younger or middle-aged, and having good sleep structure''.*
A.O.Akinpelu EAJOL	Prevalence and pattern of knee osteoarthritis in north eastern Nigeria rural community	*"229 participants age 30 and above were diagnosed as having knee OA giving point of prevalence of 16.3% .while the prevalence of symptomatic OA was 40.1% for female and 13.5% for male participants. For those above 40 years the prevalence was 20.6%. Knee OA severity was higher in participants age 50 and above than those age 60 years and above. Female participants had significantly more severe knee OA than males. obese participants by BMI classification and percentage body fat classification had significantly more severe Knee OA than participants who were overweight or with normal weight. The beliefs of participants about the cause of knee OA are old age 37%, evil spirits22.2%and hereditary19.2%. Traditional medicine was the most common health care services utilized by participants and doctors' consultation was the least. age 50and above''*
M. A. NYANGWESO Source: Aging & Mental Health ebsco	Transformations of care of the aged among Africans a study of	*"The vast majority of people thought that traditionally the aged were respected and revered. Despite this nearly three-quarters* *Felt that the aged were inactive and almost all said that the aged had withdrawn from society because they felt they did not belong.*

	the Kenyan situation	*This suggests that more should be done to help the aged remain active and be more involved in society in general''.*
.Derek Chambers & Susan Thompson ebsco	Empowerment and its application in health promotion in acute care settings: nurses' perceptions	*"Two types of practitioner were identifying: Type I divergent nurse health promotion practitioner and Type II convergent nurse health promotion practitioner. The main factor distinguishing the two types was the way in which they conceptualized the verb 'to empower''.*
Wu, Shu-Fang Vivienne, Mu-Jung Kao, Meng-Ping Wu Mei-Wun Tsai,Wan-Wen Chang. Ebsco Academic Search Elite	Effects of an osteoarthritis self-management programme.	*"The study supports the hypothesis that a self-management programme enhances arthritis-related self-efficacy and pain beliefs. A decrease in the number of unplanned medical consultations, pain days and disability days suggests that the programme might help reduce healthcare costs. In short, there were great beneficial effects on self-management among persons who are affected by knee osteoarthritis''.*
Enohumah KO and Imarengiaye CO	Pain in Osteoarthritis	*"It is clear from the foregoing that any simple unitary concept about the link between joint damage and symptoms in osteoarthritis is untenable. We are faced with a complex interaction between local events in the joint, pain sensitization, the cortical experience of pain, and what people are doing in their everyday lives''*
Roy Davis Altman, MDebsco	early management of Osteoarthritis	*""OA is a highly prevalent disease with potentially devastating effects on QOL, and a high economic burden in terms of* *both direct and indirect costs. Although our understanding* *of OA in its varying manifestations has expanded in recent* *years, clinical recommendations for diagnosing and treating*

		OA are well established and provide clear guidance to allow for early identification and prompt appropriate therapeutic Intervention. Although current therapeutic approaches for OA are primarily symptomatic in nature, there is nevertheless the potential to use available treatments to ameliorate the effects of OA on QOL and to potentially reduce the costs associated with the disease''.
Academic Search Elite Ebsco Eva Ekvall Hansson, Malin Jönsson-Lundgren, Anne-Marie Ronnheden, Eva Sörensson, Åsa Bjärnung, Leif E Dahlberg	Effect of an education programme for patients with osteoarthritis in primary care -- a randomized controlled trial.	*''We found differences between the intervention group and the control group, comparing the results at baseline and after 6 months in EuroQol-5D ($p < 0.001$) and in standing one leg eyes closed ($p = 0.02$) in favor of the intervention group. No other differences between the groups were found.* *Conclusion: This study has shown that patient education for patients with osteoarthritis is feasible in a primary health care setting and can improve self-perceived health as well as function in some degree, but not self-efficacy.* *Further research to investigate the effect of exercise performance on function, as well as self-efficacy is warranted''.*
Victor, Christina R.1,Ross, Fiona2,Axford, John3 Ebsco Academic Search Elite	Capturing lay perspectives in a randomized control trial of a health promotion intervention for people with osteoarthritis of the knee.	*''However, all the studies do seem to demonstrate that people with OA present signficant information deficits in terms of their understanding of the disease, its management and how the disease may progress''.*
Kate R. Lorig DrPH	Evidence sug-	*''Results. Pain had declined a mean of 20% and visits to physi-*

Senior Research Scientist*, Peter D. Mazonson MD, MBA Vice President, Halsted R. Holman MD Professor Article first published online: 9 DEC 2005.googgle	gesting that health education for self-management in patients with chronic arthritis has sustained health benefits while reducing health care costs	*cians 40%, while physical disability had increased 9%. Comparison groups did not show similar changes. Estimated 4-year savings were $648 per rheumatoid arthritis patient and $189 per osteoarthritis patient''.*
Donna M Urquhart1, Cathy Soufan1, Andrew J Teichtahl1 , Anita E Wluka1,2, Fahad Hanna1and Flavia M Cicuttini.google	Factors that may mediate the relationship between physical activity and the risk for developing knee osteoarthritis	*"In this review we examine possible reasons for the conflicting results arising from studies of physical activity and knee joint health, and we propose possible approaches that may be used in future investigations (Table 4). Novel methods that can be used to examine knee structure directly from health through to disease may overcome some of the problems associated with the use of radiography to examine knee joint structure. A more comprehensive examination of various knee structures and the implementation of objective and accurate assessments of physical activity may also enhance our understanding of the mechanism by which physical activity affects the knee joint''.*
Yuqing Zhang, D.Sc1 and Joanne M. Jordan, MD, MPH2. Google	Epidemiology of Osteoarthritis	*"Evolving definitions of OA and improvement in risk factor measurement, by utilizing advanced imaging, systemic and local biomarkers, and improved methods for measuring symptoms and their impact, can help to elucidate mechanisms and identify po-*

		tential areas for intervention or prevention. The application of these new sources of knowledge about the OA process holds promise for the development of new, potentially disease modifying pharmaceuticals and non-pharmacologic therapies''.
David J. Hunter, Felix Eckstein.ebsco	Exercise and osteoarthritis	*"Despite the common misconception that exercise is deleterious to one's joints, in the absence of joint injury there is no evidence to support this notion. Rather it would appear that exercise has positive salutory benefits for joint tissues in addition to its other health benefits. It is important to individualize exercise therapy for hip or knee OA, particularly considering individual patient preference, and ensure that adequate advice and education to promote increased physical activity is provided (American Geriatrics Society Panel on Exercise and Osteoarthritis 2001, 2003; Roddy et al. 2005a). As adherence is the main predictor of long-term outcome from exercise in hip or knee OA, strategies to improve adherence should be adopted, such as long-term monitoring. Similarly, patients should do exercise they enjoy to promote long-term participation. Some exercises are likely to be harmful in the long term, particularly those that involve high velocity impact (running, step aerobics, etc.) on an already injured joint surface; thus these should be actively discouraged''.*
Agency for Healthcare Research and Quality. Google	Managing Osteoarthritis: Helping the Elderly Maintain Function and Mobility	*"Agency for Healthcare Research and Quality (AHRQ) indicates that treatment involving patient self-management, occupational therapy, pharmaceutical therapy, and surgery can reduce pain, maintain or improve joint mobility, and limit functional disability. AHRQ's research shows how elderly patients with osteoarthritis can become more active and responsible for their own care, make more informed decisions, help to control the costs of health care, and improve their quality of life''.*
6.Victor Valderrabano and Christina Steiger	Treatment and Prevention of	*"As overall conclusion, OA is a multifactorial disease with a pathogenic link to muscle function and volume that is not entirely*

Google	Osteoarthritis through Exercise and Sports	*understood. Over the last decade, research has provided data supporting the hypothesis that exercise is not the reason for OA but rather delays onset and alleviates symptoms of the disorder. Furthermore, several studies have shown that muscle weakness is a predisposing factor for OA and that muscle atrophy is a common finding in OA. Changes in cartilage structure have also been investigated, and it was determined that in order to remain firm a certain amount of muscle exercise was needed. Taken into account all the above mentioned data, this would argue that exercise and sports should be used in the prevention and also in the treatment of OA and aging people. To determine which type of exercise would be most appropriate, various studies were carried out. It was shown that aquatic exercise was beneficial only in the beginning and in obese people whereas land-based aerobic and strengthening exercises had a continuous effect for as long as they were carried out. Once exercise is discontinued, all the beneficial effects that come with it vanish as well. Thus, the authors strongly believe that any additional measures that help to motivate patients to continue sports, such as training schedules, group exercises, or instructional sessions with physiotherapists are of crucial importance. To date, many studies have been carried out investigating the effect of exercise on the progression of OA. Although alleviation of pain has been shown to occur upon regular exercise, the minimal intensity of training necessary for such a positive effect still needs to be determined. Therefore, one of the biggest challenges still remains to understand the pathogenesis of OA in order to prevent the onset or find further treatments for this debilitating disorder''.*
Jill Dawson, Ray Fitzpatrick, John Fletcher and Richard Wilson	osteoarthritis affecting the hip and knee	*"Until relatively recently, a fundamental reason for the lack of adequate outcome studies in OA and OA-related orthopedic surgery, has been to do with the lack of standard acceptable outcome measures. For example, the sensitivity and interpretation of*

		methods used to measure and assess outcomes for OA has often been fairly crude and it has become increasingly clear that clinical assessments of key aspects of outcome (e.g. pain, physical function, range of joint movement) are often inaccurate and not reproducible. Clinical assessments may also overly represent concerns of the clinician, rather than those of the patient''.